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AUGUST 1, 1946

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MOUTH REHABILITATION AND BITE RAISING

Harmon Shohet, D.M.D., Boston*

According to Webster, to "rehabilitate" means "to restore to former capacity." From a dental standpoint, rehabilitation of some mouths may involve the attention of all branches of specialized dentistry. Before proceeding with the prosthetic phase of mouth rehabilitation, it is vital that any surgical, periodontal and orthodontic treatment be considered.

We have often seen broken down, neglected cases, with excessive egressions, or with bites closed to the point of altering the expression. Too frequently such cases are relegated to the premature use of full dentures. Many of these patients, however, would have benefited from satisfactory treatment involving crowns, inlays and bridges which would have restored the broken down teeth, filled the gaps, and normalized the bite. The gratitude of the patient whose mouth has been restored to normal function with subsequent improvement in facial contour and expression is in sharp contrast to the insecurity of the one who has been forced to use full dentures, prematurely.

When considering the problem of mouth rehabilitation by prosthetic measures, it may be necessary to deal with the following procedures: (1) reduction of egressions, (2) correction of tipping teeth, (3) corrections of the bite that has shifted in either direction, (4) opening of the bite and (5) restoration of defective and missing teeth. All are dealt with as one problem, using articulated study casts made from accurate impressions, on which are indicated all necessary steps for restoration of proper occlusion and alinement (Fig. 1).

It is advisable to determine and record in specific detail, beforehand, the extent of the restorative work to be undertaken.[1-4] Sometimes it is more helpful to visualize the end results by making duplicate study casts on which one can approximate harmonious function and restore deficient areas in wax. If the vertical dimensions are to be altered, however, the bite is opened to a desired height on

Read before the Harvard Odontological Society, November 16, 1944.

*Former instructor in crown and bridge prosthesis, Harvard School of Dental Medicine.

1. Shohet, Harmon: A New Type of Support for Fixed Bridges. D. Items Interest 55:370, May 1933.
2. Shohet, Harmon: A Pontic for Fixed Bridgework. D. Items Interest 59:1059, November 1937.
3. Shohet, Harmon: Technique for the Construction of Cast Clasp Bridges. D. Items Interest 46:210, March 1924.
4. Shohet, Harmon: Technique de la construction des Bridges à crochets coulés. La Semaine Dentaire, Paris, France, September 21, 1924.

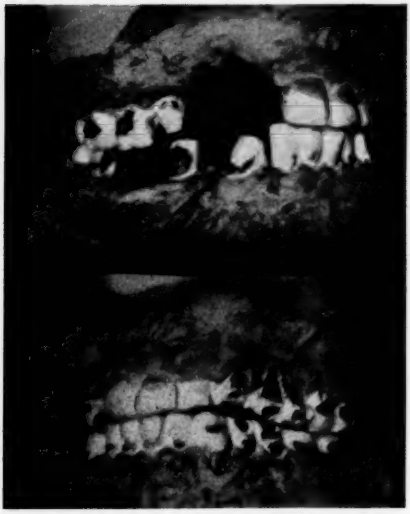

Fig. 1. Accurate stone study casts are articulated with the aid of wax bites. Dark areas represent old leaky amalgam fillings.

the study cast before any of the teeth are trimmed or built up in wax.

Having thus opened the bite tentatively, primarily for the purpose of obtaining tooth clearance in all functional excursions of the mandible, the dentist can make a more scientific and accurate adjustment of the bite. Knowledge of what constitutes a normal bite requires the careful definition of three terms: (1) the physiologic rest position of the mandible, (2) the physical rest position of the mandible and (3) the free way space.

The physiologic rest position is that position of the mandible obtained when the lips barely touch and the muscles of the face are completely relaxed. It is a neutral and resting position of the mandible with a complete balance of all the muscles suspending the mandible. The physical rest position is that position of the mandible prevailing when the teeth touch each other in central occlusion. Free way space is the difference between the physiologic and the physical rest positions. The physiologic rest position is permanent. The physical rest position changes with changes in the teeth, their loss, tipping, etc. When there is a difference of 1.5 mm. to 3.00 mm. between the physiologic and physical rest positions, the bite is said to be normal. If this differential is more than 3.00 mm., the bite is abnormally closed; and if the differential is less than 1.5 mm. it is abnormally opened.[5] Obviously, as teeth wear down with age, this difference between physiologic and physical rest positions becomes greater. Therefore, in mouth rehabilitation, the patient's age is an important factor.

Some symptoms and effects of an abnormally closed bite are:

1. Mild catarrhal effects and possibly defective hearing.[6-14]
2. Dizziness.
3. Tenderness of the mandibular joint to palpation.
4. Mandibular subluxation.
5. Headache, fatigue and difficulty in swallowing.
6. Change in facial expression, involving the development of lines about the

5. Maves, T. W.: Radiology of the Temporomandibular Articulation with Correct Registration of Vertical Dimension for Reconstruction. J.A.D.A. 25:585, April 1938.

6. Batson, O. V.: The Closed Bite and Related Clinical Problems. J.A.D.A. 25:1191, August 1938.

7. Costen, J. B.: Syndrome of Ear and Sinus Symptoms Dependent upon Disturbed Function of Temporomandibular Joint. Ann. Otol., Rhin. and Laryng. 43:1, March 1934.

8. Costen, J. B.: Neuralgia and Ear Symptoms. J.A.M.A. 107:252, July 25, 1936.

9. Kallenbach, T. E.: Effects of Functional Disorganization of the Mouth and Teeth. D. Cosmos 73:759, August 1931.

10. Lindblom, Gosta: Balanced Occlusion. D. Cosmos 75:979, October 1933.

11. Maves, T. W.: Repositioning of the Mandible Relative to the Temporomandibular Joint, Correcting Cases of Subarthrosis and Dysarthrosis. J.A.D.A. 22:763, May 1935.

12. Goodfriend, D. J.: Abnormalities of the Mandibular Articulation. J.A.D.A. 21:204, February 1934.

13. Goodfriend, D. J.: D. Cosmos 74:523, June 1932.

14. Maxwell, G. H.: A Diagnostic Classification and General Discussion of Reconstruction Cases. Illinois D. J. 8:94, March 1939.

lower facial muscles, a shortened profile, a broadened mouth, an outward roll to the lips, which appear pouched, a prominent chin and a senile expression.

7. Defective speech.

8. Diseases of the periapical and periodontal structures.

9. Ineffective mastication with resultant digestive disturbances.

10. General discomfort.

Some symptoms and effects of an abnormally opened bite are:

1. A stiff expression about the mouth.

2. An abnormally long look of the lower third of the profile.

3. Loss of the natural curve of the upper lip, which appears flat and stretched.

4. Difficulty in taking large bites and fatigue of the muscles of mastication.

5. Inability to get the lower jaw into a physiologic rest position.

6. Speaking with clenched teeth which will chatter if the occlusal surfaces are porcelain.

7. Infraclusion of the posterior teeth.[15-18]

8. Absorption of alveolar bone.

9. Injury to the periosteum, the crowns of the teeth and their roots.

10. Development of pockets and infection.

11. Injury to the nerves of the teeth.

12. General discomfort.

13. Psychoneurotic involvement.

Therefore a word of caution is in order against opening any bite too wide. It should always be kept in mind that the problem is one of restoring the bite to normalcy for the particular age of that patient, rather than opening or stretching the bite as is so often attempted. As Mershon says, "Bite restoring opens the bite only to the limit of tolerance of the muscles which control the mandible. Bite opening, or stretching, presupposes the ability to permanently increase the distance between the mandible and the maxilla. In order to do this, some of the muscles which control the jaw would have to be lengthened and others would have to be shortened."

The effects of excessive opening of the bite should be quite apparent. The patient will complain of fatigue and pain in the muscles controlling the mandible. Since in such cases the muscles involved are stretched and therefore under terrific strain, the powerful force thus created will in many instances drive the teeth into their sockets or out of alinement, with resultant serious disturbances to the surrounding soft tissues, the periodontal membrane, the alveolar process, the nerves, and to the muscles themselves. After damage to the periosteum, the teeth may tip, rotate and loosen, or pockets may develop. The roots of the teeth may become absorbed and the nerves may become irritated and die. These injurious processes will continue until the normal free way space for the particular case at hand has been restored, permitting the complete relaxation of the muscles controlling the mandible.

By whatever method we employ, therefore, the bite should be merely restored to a vertical length not in excess of that of the teeth and alveoli, and normal for the age of the individual patient. This is best determined by measuring the free way space, studying the facial expression of the patient, and determining the most comfortable vertical position of the mandible.

Procedure

I have used three methods in handling those cases requiring bite raising and

15. Grubb, H. D.: Occlusal Reconstruction. J.A.D.A. 25:372, March 1938.

16. Mershon, J. V.: Bite Opening Dangers. J.A.D.A. 26:1972, December 1939.

17. Tench, R. W.: Dangers in Dental Reconstruction Involving Increase of the Vertical Dimension of the Lower Third of the Human Face. J.A.D.A. 25:566, April 1938.

18. Thompson, J. R., and Brodie, A. G.: Factors in the Position of the Mandible. J.A.D.A. 29:925, June 1942.

extensive restoration in both upper and lower jaws. The first two methods will be briefly outlined and the third method, which I find preferable for most cases, will be described in detail.

Regardless of which method is followed, one must first determine the correct bite and construct a bite block.

Determination of the Normal Bite and Construction of the Bite Block

The teeth of the lower model of the articulated study casts are dusted with talcum powder and a mandibular sheet of shellac base plate material is softened and adapted to the occlusal surfaces of all molars and bicuspids, extending slightly toward the buccal surfaces of these teeth. The lingual portion is adapted closely to the lingual surfaces of the anterior teeth, extending slightly below the teeth in the form of flanges in the molar and bicuspid regions. The segment behind the anterior teeth should be reinforced with a heavy wire and sticky wax. Finish the occlusal surfaces very thin and smooth (Fig. 2). Chill and seat this pattern in the patient's mouth, making certain that it fits perfectly at all points.

Softened base plate wax is added to the exposed flat occlusal surfaces and adapted so that it will occlude with all the upper teeth when the two jaws are brought together. This wax bite rim is carefully carved away or more wax is added until the desired free way space and modifications in facial contour are obtained. Make certain that none of the facial muscles is stretched and that the patient is completely comfortable. All this may require time and several adjustments. It may be helpful to roentgenograph the temporomandibular joints, with the wax rim in place, in order to make certain that the condyle head is in normal anatomic position.[19] One must remember, when determining the free way space, from the physiologic and physical rest positions, to make the proper allowances for the normal change brought about by age. Conservatism is always advisable.

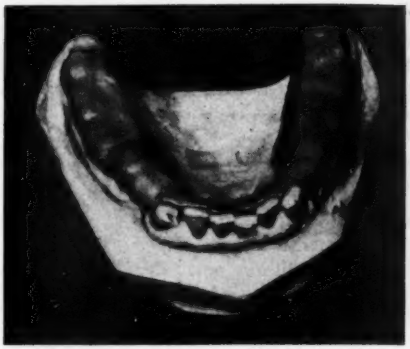

Fig. 2. First step in construction of the bite block. A sheet of shellac base plate material is adapted closely to the occlusal and lingual surfaces of the lower lubricated study cast.

After the proper bite has been obtained to the satisfaction of both patient and operator, centric relationship is registered on the lower bite rim in one of two ways:

Method 1.—A little zinc oxide impression paste is spread over the occlusal surface of the adjusted bite rim. The patient is instructed to wet the lower lip with the tongue and swallow, closing the mouth in so doing in centric position. This position is maintained until the paste hardens.

Method 2.—This is a Gothic arch tracing method. A maxillary sheet of softened shellac base plate material is adapted to the lubricated palatal surface of the maxillary study model, so that it covers the entire palate and is trimmed to the lingual festoon of the teeth. Attach to this palatal base plate the Gothic arch tracing plate that holds the adjustment screw (also called tracing pin) keeping the tracing plate parallel to the maxillary occlusal plane and slightly below it. At-

19. Riesner, S. E.: Temporomandibular Reactions to Occlusal Anomalies. J.A.D.A. 25: 1938, December 1938.

Fig. 3. Upper study model is rearticulated to lower study model in proper vertical relation.

tach the other Gothic arch tracing plate to the lower base plate, keeping it inside the bite rim, parallel to the lower occlusal plane and slightly below the wax surface. The palatal base plate and the mandibular bite rim with the Gothic arch plates thus attached are now inserted in the patient's mouth and the screw is adjusted and set so that it touches the lower Gothic arch plate when the two jaws are brought together. With the new vertical length thus maintained by the contact between the upper pin and the lower Gothic arch plate, a little of the occlusal wax from the lower bite rim is trimmed so that it will not interfere with the movement of the lower jaw in all directions.

A film of blue inlay wax is melted onto the lower Gothic arch plate and the patient is instructed to close the jaws and to move the mandible forward, backward, and from side to side. Within a short time, a Gothic arch tracing will be noted on the lower plate. A little disk of 1 or 2 mm. thickness with a hole in its center large enough to accommodate the tracing pin point is centered over the apex of the Gothic arch tracing and is waxed into position.

Zinc oxide impression paste is now spread over the lower bite rim and the patient's lower jaw is guided into centric position as the tracing pin slips into the hole in the disk. This position is maintained until the paste sets.

The lower bite rim is then transferred to the mandibular model of the articulated study cast. The upper study cast and the set screw are readjusted in accordance with the new bite (Fig. 3), and the wax bite is removed. The upper and lower study casts are now properly articulated in normal vertical relation. Forty gage tinfoil is next adapted to the teeth of the lower study cast, and a wax bite block is constructed using a metal lingual bar if the anterior teeth are present. Wire retention clasps may be used where possible. All edentulous spaces may be filled with wax and, where the bite block covers the occlusal surfaces of remaining teeth, it may be constructed as extensions of these teeth, thus elongating them in conformance with the requirements of the new bite. This wax model is removed from the study cast with the layer of foil on the under side turned up so that it will come away with the wax pattern. After it is tried in the mouth it is invested and processed in acrylic resin (Fig. 4).

The patient wears this bite block for several days to test its accuracy. If the bite has been opened too wide, the patient will complain of discomfort, and the bite is reduced, as required, by grinding. If the bite has not been sufficiently opened, this can be rectified by adding more wax to the occlusal surfaces of the

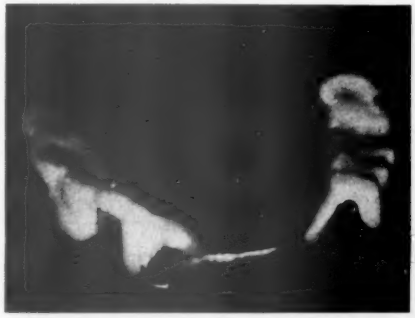

Fig. 4. Completed acrylic bite block.

bite block and reprocessing it. After any changes, the bite block must always be replaced on the lower study cast, the upper study cast removed and rearticulated and the articulator set screw readjusted. This is important because the guide with which to articulate the working models will be determined later from the position that these study casts occupy on the articulator.

First Method of Restoration

By this method, all mandibular teeth are restored before work is begun on the maxilla. The bite block, which is used as the guide in establishing the correct vertical occlusion for the restorations, must be worn and adjusted during this period. The restorations are made in sections. For example, a molar on the right side is prepared, followed by preparation of the corresponding molar on the left side. As the preparation of each tooth is completed, that portion of the acrylic bite block which is directly over the prepared tooth is cut away and a bite for the prepared tooth is obtained with the bite block replaced in the mouth.[20] When the crown or inlay is completed, it is cemented into place, after which the molar on the other side of the mandible is built up. The acrylic resin bite block on this second side is then cut away over the tooth to be restored and the same procedure is followed as explained before. In some cases it is best not to cement the first crown into place until the corresponding crown is ready, when the two are cemented at once. This process is repeated until all of the lower teeth have been built to the desired occlusal height.

The upper restoration is then made. It is usually necessary to make all preparations, complete all castings and cement them all into place at one time in the upper jaw.

20. Doxtator, L. W.: Opening the Bite. D. Items Interest 52:449, June 1930.

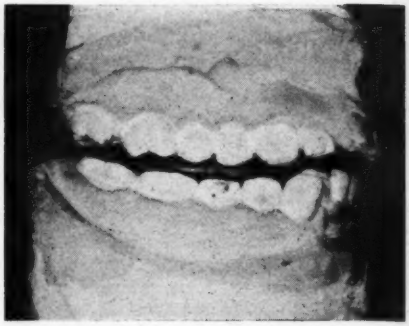

Fig. 5. Side view showing a bit of base plate wax indicating the approximate elongation contemplated for the lower molars and bicuspids only.

Second Method of Restoration

This method may be used when the molars and bicuspids in only one jaw are to be restored (Fig. 5). The correct bite is first determined as described, a bite block is constructed and the set screw on the articulator is adjusted according to this new bite.

After the molars and bicuspids of the two articulated study casts are lubricated, a bite guide is constructed for the bicuspids and molars of the left side of the mandibular study cast in the following manner. Adapt a small piece of softened double-thick shellac base plate material to the occlusal surfaces of these teeth on the cast. While the material is still soft, bring down the lubricated maxillary study cast as far as the set screw permits so that an imprint of the upper teeth is obtained in the bite guide, as well as a true gage of the opening that was previously determined (Fig. 6).

Place this bite guide over the left mandibular molars and bicuspids in the patient's mouth (Fig. 7). The next procedure is the preparation of the corresponding teeth of the right side of the mandible (or maxilla, if the bite-raising is to be done on the upper posterior teeth). When these preparations are finished, and with the bite guide still in

Fig. 6. Construction of the bite guide for one side only.

place on the left side, a piece of softened base plate wax is placed over the prepared teeth and the proper bite is obtained in the wax by having the patient close the jaws as far as the bite guide on the left side permits, this guide acting as a stop.

After the castings for the right side are completed, the teeth on the opposite side of the mandible (or maxilla) are prepared and the proper wax bite impression of these teeth is obtained. The completed castings of the right side, which have been placed on their respective teeth, act as bite guides or stops (Fig. 8). When the castings (and bridges) of both sides are completed, they are all cemented into place at one sitting. The anterior teeth are then restored.

Third Method of Restoration

This method is preferred for cases requiring restoration of molars and bicuspids in both jaws. The normal bite is determined, the study casts are properly adjusted on the articulator and the bite block is constructed as previously described. All preparations in the upper arch are completed and a master (working) model of this arch is made and mounted in its proper position on the articulator. The teeth of the opposite arch are then prepared.[21] The details for constructing and properly articulating this master or working model will be given later. It is very important to leave one molar on either side of both arches and at least one anterior tooth unground. This is necessary in the construction of the so-called transfer guide which is used to articulate the master model in the same relation and vertical opening as was previously established with the study casts. The transfer guide is made in the following manner.

The Transfer Guide

A double-thick maxillary sheet of shellac base plate material is softened and placed over the previously lubricated occlusal surfaces of the articulated lower study cast. While the material is still soft, the upper study cast, the teeth of which have also been lubricated, is

21. Bailey, E. E.: Method of Diagnosing and Treating Cases Requiring Repositioning of the Mandible and Rebuilding of the Occlusal Surfaces of the Teeth. J.A.D.A. 24:33, January 1937.

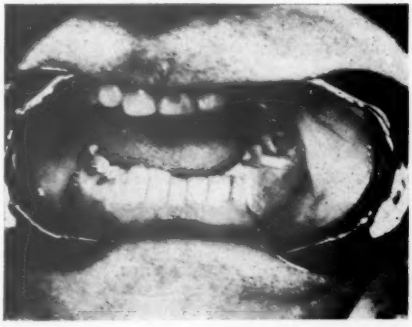

Fig. 7. The bite guide in place in the patient's mouth.

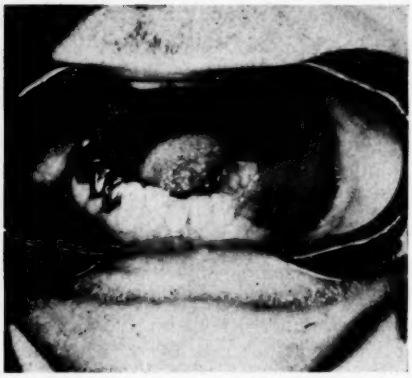

Fig. 8. The completed castings of the proper elevation temporarily in position on one side to act as stops.

brought down into centric occlusion as far as permitted by the set screw, already adjusted for the proper opening. In this way the tips of the anterior teeth and the occlusal surfaces of the molars and bicuspids in both jaws are registered in the base plate material. At the same time we get a guide with which to transfer to the occluded master models the same degree of vertical opening already determined with the study casts. The base plate is trimmed after it hardens and a little soft pink base plate wax is added to all of the tooth imprints on both sides. The base plate is reinserted between the upper and lower study casts and the occlusal tips reregistered more sharply by closing the articulator.

These imprints should not extend beyond the tips of the teeth, since these are the only areas which usually remain constant on the teeth of both study cast and master model. Because of this fact, the master models can later be seated in the transfer bite and mounted accurately on the articulator. For this reason, too, at least one anterior tooth and one molar on each side were previously left unground so that these unground teeth might act as seats in mounting the master casts. These teeth can later be reconstructed individually. The incomplete transfer guide is laid aside at this point to be finished at a later time in the patient's mouth.

Preparation of the Teeth

The preparations previously determined and recorded are now made. For anterior teeth, jackets are preferable, if the bite is opened extensively. Otherwise, I use three-quarter crowns or semi-veneers. For bicuspids and molars, either inlays, the semi-veneers or three-quarter veneers are used if the bite opening is more limited. Otherwise, jacket crowns, porcelain or acrylic veneered full crowns or all gold full veneers are used. In all preparations the following basic principles should be observed.

Always keep in mind the load each abutment tooth will be obliged to carry and the strain to which it will be subjected, and choose the type of preparation most satisfactory under these circumstances.[22]

The occlusal portion of all castings should be thick enough to withstand the strain and wear normally to be expected in the course of years. After all the castings are tried in the patient's mouth, it is sometimes necessary to correct the occlusion by grinding. It is therefore better to make a casting a little too thick than too thin.

Keep in mind the importance of maintaining the vitality of all teeth and execute all grinding carefully. Extend all margins to zones of immunity and as far under the free margin of the gum as possible. However, unnecessary mutilation of the gum and periosteum must be avoided as this may result in subsequent gum recession and periodontal difficulties. Make all preparations so that they will be retentive under all conditions of strain and occlusal stress. Generally, box

22. Schwartz, J. R.: Cavity Preparation and Abutment Construction in Bridgework. Brooklyn, N. Y.: Dental Items of Interest Publishing Co., 1936.

preparations have more retention than slice preparations. It is best not to taper the walls of any preparation too sharply. Three-quarter crowns or semi-veneers are usually more satisfactory than inlays. Mesio-occlusal-distal inlays are to be preferred to onlays. Small shallow inlays are inadequate.

A cavity outline should not end in, but should include within its range, any grooves, fissures and sulci. On occlusal surfaces, for the sake of saving tooth substance and avoiding possible injury to the pulp, the cavity outline should follow the depressions and eminences of the cusps and sulci. If the outline of the cavity reaches into the range of the forces of occlusion and mastication, it is generally best to overextend it beyond this range. All unsupported enamel should be removed.

For better retention, all seats should be flat and in a plane at right angles to the stress of mastication. All anchorage and retention should be made in dentin, not in enamel.

All traces of decay must be removed, the cavity carefully sterilized, and if close to the pulp, the latter must be protected with a pulp capping material.

The preparations should be finished with sandpaper disks, dried, sterilized, dried again, and the dentin tubules sealed with a varnish. The tooth should then be covered with some protective agent to prevent thermal shock and its movement in any direction. This will be described in more detail later.

The lower first bicuspid makes a poor abutment unless most or all of its surfaces are included in the preparation. If the preparations are carefully planned in advance, several on one side can be made at once, with the proper assistance. In the interest of speed of preparation and comfort for the patient, I use diamond disks and stones kept chilled by the assistant with a spray of lukewarm water, or a stream of cold air directed upon the tooth under preparation.[23] Many cases, however, require procaine or other anesthesia. In such cases, also, the tooth should be kept chilled to prevent overheating and pulp injury. A disk revolving at high speed but applied with light pressure is more efficient and less painful than one used at lower speed and with greater pressure. Cutting with disks should not be done as one uninterrupted operation; rather it should be accomplished by intermittent application and withdrawal of the stone.

Taking Impressions and Covering the Prepared Teeth

When a preparation is finished, a soft copper tube is fitted carefully to the festoon of the prepared tooth. A small compound cone of the proper size is then softened at the small end. Keep other end hard, and with the copper tube in proper position, press the soft end of the cone into place and chill thoroughly before removing. Meticulous fitting of these copper bands, especially for three-quarter crowns, will save a great deal of time in taking the impression. The prepared tooth is then sterilized, covered with a varnish, and protected with an aluminum crown. These crowns are fitted carefully so that they cover the preparations completely and make contact with the adjacent teeth and opposite occluding surfaces. They are filled with zinc oxide, placed on the teeth, and before this paste has completely set, they are removed and cemented into place with thick chloropercha. This facilitates their subsequent removal. Or the tooth may be lubricated with cocoa butter before the aluminum crowns are cemented in place. For three-quarter veneers, the labial surfaces of the aluminum crowns may be cut out. For anterior teeth, celluloid crown forms filled with synthetic porcelain are used instead.

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23. Killilea, J. F.: Air-Conditioned Handpiece. J.A.D.A. 32:966, August 1945.

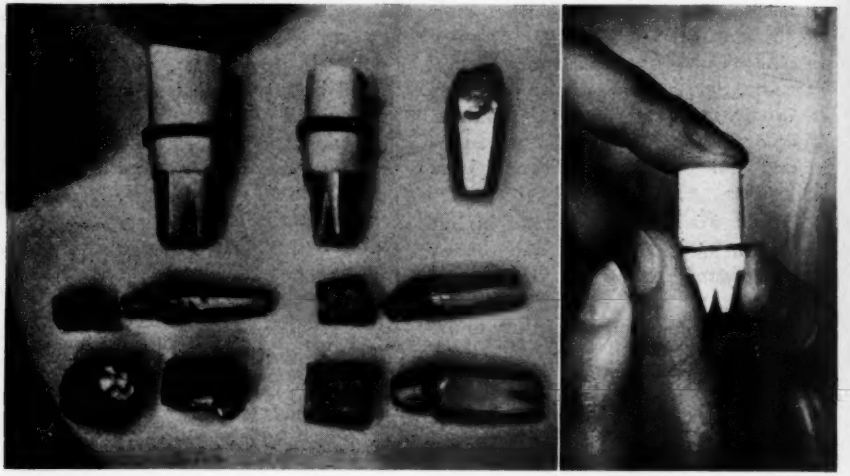

Fig. 9. Left: Die roots trimmed for more accurate seating. Lower dies show counter dies near them. Right: Method of casting counter dies over die by forcing molten low fusing metal into paper ring wrapped around die.

Making the Dies

The impressions are wrapped with thin sheet wax, embedded in soft plaster that is contained within a ring of metal, and packed with amalgam, making certain that the amalgam is well mixed and thoroughly condensed. When the amalgam has hardened, the dies are removed and trimmed and disked to smooth tapering root ends of at least one-half inch in length. The root ends should be finished very smoothly with sharp edges and vertical grooves so that they will make definite seats. There should be no undercuts, and it is helpful to cut a tiny horizontal groove at some point on the buccal or labial surface of the die root, close to the die crown itself, to facilitate its removal from the stone model in which it is to be set (Fig. 9, left).

Making the Counter Dies

When all dies for the upper jaw are completed, counter dies are made in the following manner.

Each die is first protected with dental varnish and then painted with a thin paste of whiting and water. A piece of smooth stiff paper is wrapped around the die root, making a paper box for the prepared surface (Fig. 9, right). Because the root end of the die has been tapered, this paper box will flare out slightly, as is desirable. The paper may be held in place with a small elastic orthodontia band or with the thumb and finger. Heat a little low fusing metal in a ladle just to the melting point and pour it into the paper box created around the die. Force the molten metal into place with a finger. Chill immediately under cold water. If the counter die, thus cast, has not been permitted to extend over onto the tapered root end of the die, it will come off easily from the die over which it was cast. The counter die is trimmed smoothly to a flat top and sharp angles with sandpaper disks (Fig. 10, left). It is desirable to make all of the counter dies of equal length so that when they are seated on their respective teeth in the mouth they will all be about the same height and will line up evenly.

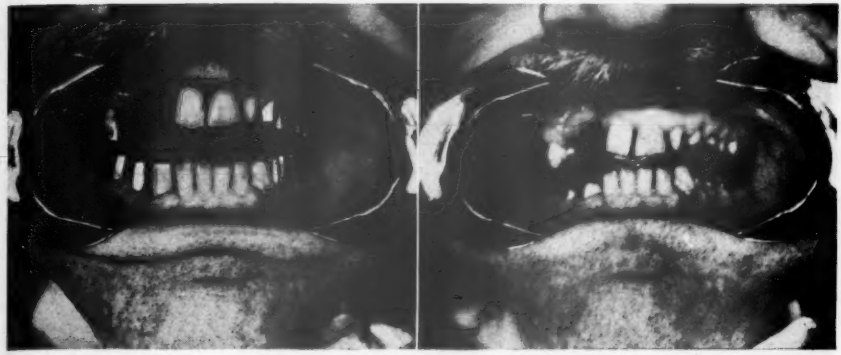

Fig. 10. Left: The counter dies placed on their respective teeth before taking impression with plaster. Right: Completion of the transfer guide.

Completion of the Transfer Guide and Construction of the Master Model

The temporary crowns are next removed and the transfer guide is completed. A little zinc oxide impression paste is spread over those areas in the maxillary side of the transfer guide which will come in contact with the maxillary molars and bicuspids that have been prepared. The guide is placed over the lower teeth which have not yet been ground and the patient is asked to close the jaws gently and slowly until the unground upper anterior teeth and last molars are seated in their wax imprints, but no further (Fig. 10, right). Thus, we have in the maxillary side of the transfer guide the imprints of the prepared maxillary teeth without altering the vertical measurement of the transfer guide.

After the maxillary side of the transfer guide is completed, the upper master model is constructed. The counter dies, made previously on the dies of the prepared maxillary teeth, are now placed on their respective teeth in the mouth. They should all seat perfectly and securely. With all of the counter dies in place, a plaster impression is taken. The counter dies will usually come off with the impression, or they can be carefully seated in the plaster impression after the plaster

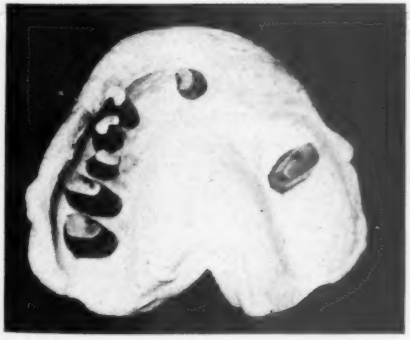

Fig. 11. Dies set into their respective counter dies in the plaster impression.

Fig. 12. Mounting the upper master model with the lower articulated study model.

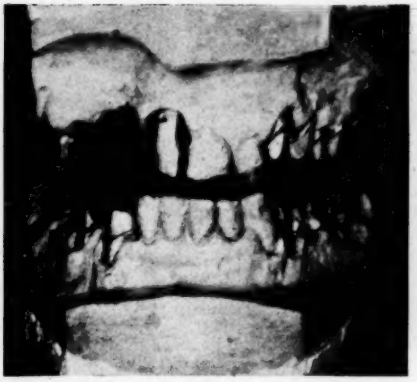

Fig. 13. Mounting the lower master model with the upper articulated master model.

Fig. 14. The completed case, front view. The upper left central and lateral incisors will be restored later when all completed crowns and bridges are set in the mouth.

has been assembled. Seat each die in its counter die, secure with sticky wax and cover with wax any exposed part of the die crown and a little of the adjacent die root (Fig. 11). Lubricate the die roots, varnish the plaster, and pour with stone. If these precautions have been taken it will be easy to lift the dies out of the hardened stone model with the aid of the little horizontal slots previously made in the dies. The upper master model is now complete.

Articulating the Master Model

This upper master model is now substituted for the upper study cast on the articulator. This is accomplished by placing the transfer guide on the lower articulated study cast and seating the upper master model in the exposed occlusal markings of this transfer guide (Fig. 12). The upper master model is secured to the articulator with plaster.

The same procedure is followed with the lower jaw and the lower master model is constructed and secured in proper position on the articulator with the aid of the transfer guide (Fig. 13). Thus, the two master models are mounted together in proper centric relation and with the bite raised to normal.

Completion of the Case

By utilizing the dies on the master models for the construction of inlays, veneers, crowns, jackets or bridges, the restoration is completed, consideration being given to all of the functional positions of the mandible. When the space between the two articulated master models is being filled, esthetics and the particular requirements of the case should be kept in mind. In most cases it is advisable to divide this space rather evenly between the upper and lower arches.

It is usually best to complete one arch before doing the other. When there are bridge restorations to be made, a plaster impression for a special model to be used in the final assembly of the bridge is taken with the abutment castings seated in the patient's mouth. After this impression is assembled, the abutment castings are seated and secured in their proper places in the impression with sticky wax. A thin film of pink wax is then spread on the inner surfaces of the abutment castings and a stone model is poured. The castings can later be removed from this model with a little heat and replaced on the master model, on which the pontics are constructed and the first assembly made. The pontics, thus

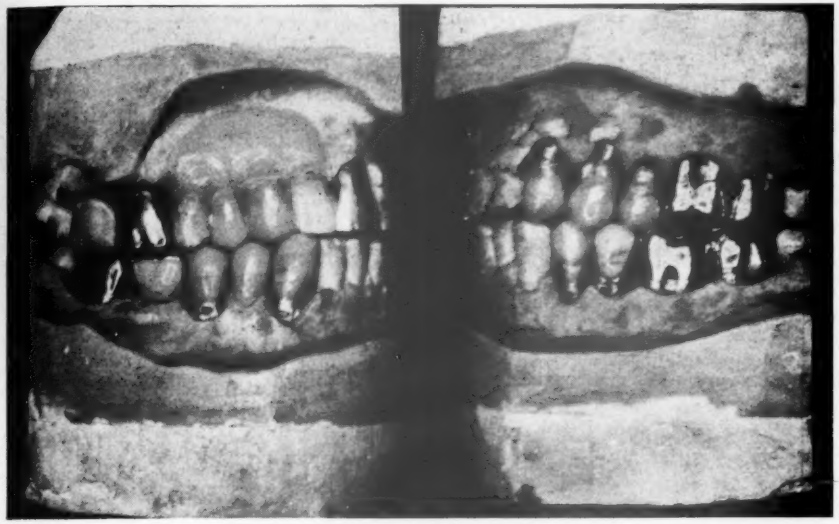

Fig. 15. The completed case, right and left views. The last molars will be restored later when these crowns and bridges are cemented in the mouth.

secured to one abutment, are replaced on the special model, secured with sticky wax in proper relation to the second abutment, removed from the special model, invested and the assembly completed with solder. The completed bridge is then returned to the master model (Figs. 14 and 15).

To insure good contacts, it is best to wax, cast and polish alternate patterns. When those remaining are waxed, a tighter contact can be effected with the

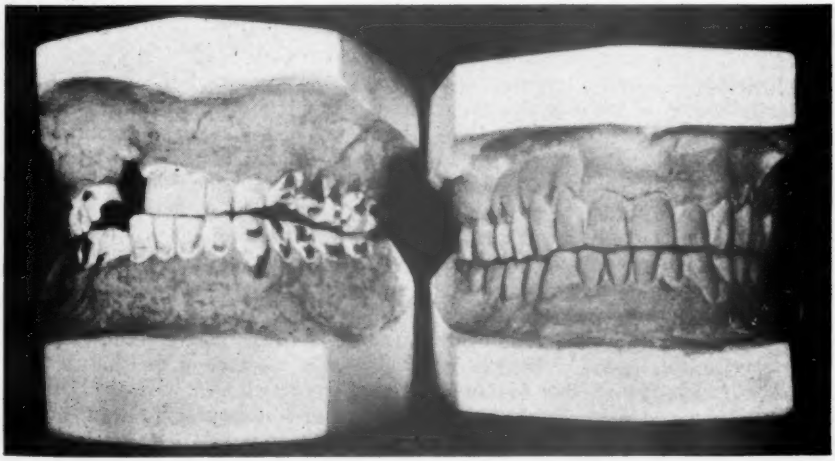

Fig. 16. Stone study casts of the case before and after rehabilitation.

polished surfaces of those already finished.

Enough time should be allowed to cement the castings and replacements for an entire arch at one sitting. The same procedure may be followed for the opposite arch at a later sitting unless there are cusp interferences of the restorations of the first completed arch with the temporary crowns of the other. In this case, both arches are best replaced at once.

All teeth should be thoroughly sterilized and dried before cementation. To prevent subsequent sensitiveness, it is helpful to wipe those that have been extensively ground with a very soft mixture of zinc oxide and eugenol just before cementing the castings in place.

Finally, those unground anterior and posterior teeth in both arches are prepared and restored in a manner best suited for the individual case.

As the restorations are placed in the mouth, it is desirable to check the occlusions in all positions of the mandible with articulating paper so that proper adjustments can be made. This procedure is repeated after the patient has worn all of the restorations for several days. The ground areas are then polished.

At the completion of one of these extensive restoration cases (Fig. 16), there is a satisfactory sense of accomplishment in the knowledge that esthetics, hygiene, health and comfort have been served.—*276 Commonwealth Avenue.*

FIVE-YEAR TIME AND TREATMENT DENTAL STUDY IN PICKETT COUNTY, TENNESSEE

Carl L. Sebelius, D.D.S., M.P.H., Nashville, Tenn.*

The Pickett County dental study was planned as a five-year time and treatment program to study the advisability of following certain operative procedures in dental care for children and the practicability and advantages of periodic dental service programs beginning with a young group.

Pickett County, which is in the upper Cumberland area bordering on Kentucky, was considered an ideal area in which to conduct the planned program because it is a small isolated county, with no practicing dentist, with an approximate elementary school enrollment of 1,400 students, in 1940, and with dental needs about the same as the state averages compiled by examinations made by members of the Dental Hygiene Service. The geography of the county is such that dental care is extremely difficult to obtain.

The main objectives set forth for the program were as follows:

1. Improvement of one's operative ability by annual reexamination of work done in the past.

2. Consideration of the practicability of a dental service program for children, beginning at an early age, with subsequent care on an annual basis.

3. Determination of the best type of dental care to be rendered to children in a service program.

4. Determination of the time required for treatment of accumulated defects and subsequent dental treatment of the type set forth in the procedures to be followed in conducting the study.

5. Consideration of the decrease in number of lost permanent teeth in the treatment group.

*Director of Dental Hygiene Service, Tennessee Department of Public Health.

6. Determination of the effectiveness of application of ammoniacal silver nitrate once a year in proximal cavities in deciduous teeth.

When the original plans were written, a study of the improvement in the average daily attendance and scholarship was proposed, but it was not considered further since, after a careful review of the variables, it was thought that no comparisons could be made because of the wide variance between the enrollment and the average daily attendance in the elementary schools. For instance, in 1944, the enrollment in all twenty-nine elementary schools of the county was 1,213, with an average daily attendance of only 868.

The program was initiated in September 1940, with P. E. Blackerby, Jr., then director of the service, making most of the original plans for the program, the major portion of the program in 1940, 1941, 1942 and 1943 being conducted by R. D. Hayes and me. Pratt Ringland and B. F. Gunter conducted the major portion of the corrective service program in 1944. Virtually all of the dental examinations made in 1941, 1942 and 1944 were made by me.

Program Plan

Since the annual report on school data in 1938-1939 for Pickett County showed that there were 409 students in the first grade and 149 in the second grade, it was decided that the entering treatment group would be limited to all second-grade children who were 8 years of age or younger (age attained at the beginning of the study year). The children, once admitted, were to be given annual treatment for the duration of the program, and new groups of second-grade children were to be added during the 1941 and 1942 program periods. The last two years of the program were confined to the treatment of the students already admitted.

For statistical purposes, dental examinations of all students in attendance in the elementary and high schools of the county were to be conducted during the 1-3-5 study years, the examined group being divided during the 3-5 years into two groups designated as the treatment and nontreatment groups.

Program Procedures

Examination sheets were used for all students in the treatment and nontreatment groups. In addition, for each student of the treatment group, an individual examination and operative record card was filled out with each record serving a maximum of four years, a different colored ink being used for each year. The time consumed at each appointment was recorded on the back of each record. In order to determine the effectiveness of ammoniacal silver nitrate when applied to proximal carious areas in deciduous teeth without subsequent fillings, "o.k.," "e" and "c" were used —"o.k." when no further progress of caries occurred, "e" when the tooth was extracted between study years and "c" when caries had progressed in the tooth.

The type of dental service rendered the treatment group consisted of a prophylaxis, usually, with complete service of the permanent teeth by the use of silver amalgam fillings carved with cavity outlines extended to include all flaws or fissures, a matrix being used for all Class II fillings, and silver nitrate as indicated in posterior teeth. Synthetic porcelain fillings were placed in proximal anterior teeth with cavity linings and cement bases in all deep-seated cavities. The deciduous teeth received an emergency type of service, all deciduous teeth showing definite pulp involvements being extracted. Small cavities, especially those on the occlusal aspect, as well as distal cavities in deciduous second molars, were filled with silver amalgam. Other carious proximal areas were treated with ammoniacal silver nitrate

after a self-cleansing slice preparation was made and the carious dentin removed. The ammoniacal silver nitrate used during the study was prepared fresh once a week and reduced with eugenol, the area dried and a lapse of one minute observed after each application.

Program

On the basis of the outline plan and procedures, eighty students were admitted for dental service in 1940, 176 in 1941, 238 in 1942, 172 in 1943 and 155 in 1944. The causes for loss of students who had received treatment for one or more years were interesting. Of the 271 students admitted to the study group in 1940, 1941 or 1942, 116 were lost for the following reasons: moved to other counties in Tennessee, 42; moved out of Tennessee, 26; refused further treatment, 18; absent from school, 11; quit school, 8; school not in session, 6; dentist not able to get to school, 2; miscellaneous reasons, 3; total, 116.

The response was extremely good. After the infected teeth had been removed, most of the students seemed anxious to continue with dental care. It was unfortunate that many families moved out of the county. Fifty-nine per cent of the 116 students were lost from the group because of removal from the county. These losses were attributed mostly to migration because of flooding of the land in Pickett County in 1943 from impoundment of the waters behind the Dale Hollow Dam, and as a result of the war.

Comparison of Dental Health Status of Treatment and Nontreatment Groups

The comparisons of the dental health status of the treatment and nontreatment groups have been taken from statistical summary records compiled from the data gathered from the dental examination findings of 979 students examined in 1940; 924 students examined in 1942, with 232 students in the treatment group and 692 students in the nontreatment group, and 861 students in 1944, with 157 students in the treatment group and 704 students in the nontreatment group. The data from the 1942 and 1944 dental examinations which were considered comparable were from the age groups 6-8 and 9-11 in 1942 and 9-11 and 12-14 in 1944. Comparisons of the dental health status of these age groups in 1942 and 1944 for the treatment and nontreatment groups were based on:

1. Average number of dental defects per student.
2. Percentage of students with one or more fillings.
3. Number of fillings in deciduous teeth per hundred students.
4. Number of fillings in permanent teeth per hundred students.
5. Number of lost permanent teeth or permanent teeth indicated for extraction per hundred students.
6. Number of students in need of dental care.
7. Number of decayed, missing or filled permanent teeth per hundred students (1944 only).

The average number of dental defects per student in the nontreatment group remained rather constant year by year except in the age group 15-17 years. For instance, in the age group 6-8 years, the average number of dental defects found per student was 5.8 in 1940, 6.3 in 1942 and 6.0 in 1944. In the age group 9-11 years, the average number of defects was 4.6 per student in 1940, 4.9 in 1942 and 5.0 in 1944. In the age group 12-14 years, the number was 3.8 in 1940, 4.4 in 1942 and 3.9 in 1944. In the 15-17 year age group, the number was 4.0 in 1940, 3.5 in 1942 and 4.9 in 1944.

Even though virtually all cavities in the deciduous teeth of the treatment group were treated with silver nitrate, those not subsequently filled were

Table 1.—Comparison of Average Number of Dental Defects of Nontreatment and Treatment Cases by Age Groups for 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number of Dental Defects	Average Number Defects Per Student	Number of Students	Number of Dental Defects*	Average Number Defects Per Student
1942						
Total	352	1955	5.6	228	680	3.0
6-8	162	1024	6.3	119	429	3.6
9-11	190	931	4.9	109	251	2.3
1944						
Total	344	1522	4.4	154	158	1.0
9-11	169	844	5.0	121	154	1.3
12-14	175	678	3.9	33	4	0.1

*Deciduous teeth not filled, but treated with ammoniacal silver nitrate, counted as dental defects.

counted as untreated dental defects. Table 1 gives the average number of untreated dental defects found in the nontreatment and treatment groups, by age groups. The number of untreated dental defects in the treatment group was, as expected, less in 1942 and 1944 than in the nontreatment group. For example, in the age group 9-11 years, an average of 4.9 dental defects was found in 1942 in the nontreatment group as compared with 2.3 per student in the treatment group. In 1944, in the same age group, the average number of dental defects was found to be 5.0 in the nontreatment group and 1.3 in the treatment group.

Little change was found in the nontreatment group in regard to the percentage of students with one or more fillings in 1942 and 1944 as compared with those revealed in the original examinations made at the beginning of the study in 1940. When comparisons are made in regard to the treatment and nontreatment groups, as shown in Table 2, there was a marked increase in the number of students with fillings. In 1944, the treatment group showed that 94.2 per cent of the 121 students 9-11 years of age had one or more fillings present, while the nontreatment group of 169 students had only 10.7 per cent with fillings in their teeth.

Table 3 shows the filled deciduous tooth rate for nontreatment and treatment students by age groups. In 1942, the group of 119 students in the 6-8 year old treatment group was found to have 77.3 fillings per hundred students as compared with 6.8 fillings per hundred students in the nontreatment group of 162 students. The number of fillings found in the deciduous teeth remained almost the same in the nontreatment group 6-8 years, with an average of 7.7 fillings per hundred students in 1940 and 6.8 and 7.5 fillings per hundred students in 1942 and in 1944, respectively.

Because of the dental treatment rendered the students in the treatment group 9-11 years, the number of fillings in permanent teeth increased from twenty-five filled permanent teeth per hundred students at the beginning of the study in 1940 to 375.2 and 487.6 per hundred students in 1942 and in 1944, respectively, nineteen times as many fillings in the permanent teeth per hundred students in 1944 of the treatment group

Table 2.—Comparison of Percentage of Students in Nontreatment and Treatment Groups with One or More Fillings Present by Age Groups for 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number with One or More Fillings	Per Cent with Fillings	Number of Students	Number with One or More Fillings	Per Cent with Fillings
1942						
Total	352	41	11.6	228	186	81.6
6-8	162	11	6.8	119	96	80.7
9-11	190	30	15.8	109	90	82.6
1944						
Total	344	48	14.0	154	142	92.2
9-11	169	18	10.7	121	114	94.2
12-14	175	30	17.1	33	28	84.8

as were found in 1940 at the beginning of the study. The number of fillings, as shown in the nontreatment group in Table 4, remained almost the same, with 54.2 and 30.2 per hundred students in 1942 and 1944.

The number of permanent teeth lost or indicated for extraction per hundred students is considered as one of the best means of evaluating the worth of a dental health program.

Only seven permanent teeth were lost by the students admitted to the treatment group, one during the first year of treatment and three in the second year of the study, with three additional permanent teeth extracted by private dentists. In all cases, these teeth were practically beyond repair at the beginning of the study period. A comparison of the number of permanent teeth lost or indicated for extraction in

Table 3.—Comparison of Number of Fillings in Deciduous Teeth of Students in Nontreatment and Treatment Groups by Age Groups for 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number of Fillings in Deciduous Teeth	Filled Deciduous Tooth Rate*	Number of Students	Number of Fillings in Deciduous Teeth	Filled Deciduous Tooth Rate*
1942						
Total	352	37	10.5	228	137	60.1
6-8	162	11	6.8	119	92	77.3
9-11	190	26	13.7	109	45	41.3
1944						
Total	344	10	2.9	154	79	51.3
9-11	169	9	5.3	121	78	64.5
12-14	175	1	0.6	33	1	3.0

*Number of fillings in deciduous teeth per hundred students.

Table 4.—Comparison of Number of Fillings in Permanent Teeth of Students in Nontreatment and Treatment Groups by Age Groups for 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number of Fillings in Permanent Teeth	Filled Permanent Tooth Rate*	Number of Students	Number of Fillings in Permanent Teeth	Filled Permanent Tooth Rate*
1942						
Total	352	128	36.4	228	663	290.8
6-8	162	25	15.4	119	254	213.4
9-11	190	103	54.2	109	409	375.2
1944						
Total	344	197	57.3	154	830	539.0
9-11	169	51	30.2	121	590	487.6
12-14	175	146	83.4	33	240	727.3

*Number of fillings in permanent teeth per hundred students.

the nontreatment and treatment groups is shown in Table 5. In 1944, the nontreatment group 9-11 years showed ten times the number of permanent teeth lost or indicated for extraction that the treatment group of similar age showed.

Table 6 gives the number of students in nontreatment and treatment groups in need of dental care in 1942 and 1944. With the type of limited dental care that was given the deciduous teeth of the treatment group, 36.4 per cent of the students were found to need additional care of the deciduous teeth at the completion of the study in 1944, while 88 per cent of the students in the nontreatment group of similar age gave evidence of need for dental care.

A comparison of the dental caries experience of the permanent teeth in the

Table 5.—Comparison of Number of Permanent Teeth Lost or Indicated for Extraction in Students of the Nontreatment and Treatment Groups by Age Groups for 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number of Lost Permanent Teeth*	Lost Permanent Tooth Index†	Number of Students	Number of Lost Permanent Teeth*	Lost Permanent Tooth Index†
1942						
Total	352	62	17.6	228	5	2.2
6-8	162	17	10.5	119	0	0
9-11	190	45	23.7	109	5	4.6
1944						
Total	344	135	39.2	154	7	4.5
9-11	169	43	25.4	121	3	2.5
12-14	175	92	52.6	33	4	12.1

*Includes both lost teeth and permanent teeth indicated for extraction.
†Number of lost permanent teeth per hundred students.

Table 6.—Comparison of Number of Students in Nontreatment a nd Treatment Groups in Need of Dental Care by Age Groups in 1942 and 1944

Age Group in Years	Nontreatment			Treatment		
	Number of Students	Number in Need of Dental Care*	Per Cent in Need of Dental Care	Number of Students	Number in Need of Dental Care*	Per Cent in Need of Dental Care
			1942			
Total	352	316	89.8	228	170	74.6
6-8	162	144	88.9	119	88	73.9
9-11	190	172	90.5	109	82	75.2
			1944			
Total	344	301	87.5	154	56	36.4
9-11	169	147	87.0	121	53	43.8
12-14	175	154	88.0	33	3	9.1

*Deciduous teeth not filled, but treated with ammoniacal silver nitrate, counted as dental defects and as in need of more treatment.

treatment and nontreatment groups in 1944 was made to see whether they were primarily the same. The DMF* rate was 227.3 decayed, missing and filled permanent teeth per hundred students in the age group 9-11 years in the treatment group as compared with 262.1 per hundred students in the nontreatment group of a similar age group. In the nontreatment group, the DMF rate rose from 125.0 per hundred students in the 6-8 year age group to 262.1, 406.3, and 578.4 per hundred students in the 9-11, 12-14 and 15-17 year age group, respectively.

Dental Services Rendered Treatment Group

Table 7 shows a summary of dental services rendered to the 271 students who were admitted to dental service during the study. For the five-year period, treatment included 808 prophylaxes, extraction of 459 deciduous and four permanent teeth, 1,225 alloy fillings, 230 in deciduous teeth and 995 in permanent teeth, 110 cement bases, twenty-nine cement fillings, forty-one synthetic fillings and 1,774 silver nitrate treatments not under fillings and 401 silver nitrate treatments under fillings.

The time required to render dental service to the students in the treatment group was reduced tremendously by the systematic manner in which the students were handled while in the chair. The students were found to have very little calculus around the teeth and they were exceptionally good patients. The time for care was again reduced, because 1,774 silver nitrate treatments were applied to cavities in deciduous teeth without the insertion of a filling.

The average time in minutes per student required for the group was 42.1 the first year and 25.3, 23.2, 24.8 and 20.9 per student during the second, third, fourth and fifth years of the study. The time requirement for the 185 students who received annual care for three successive years was an average of 42.4 minutes the first year, 25.6 minutes the second year and 23.2 minutes the third year, as shown in Table 8.

*Decayed, missing and filled permanent teeth per hundred students.

Summary

The Pickett County dental study was

Table 7.—Summary of Clinical Services Rendered All Students in Treatment Group, 1940-1944

	Treatment Group					
Year of treatment	First	Second	Third	Fourth	Fifth	Total
Number of children receiving treatment for one or more years	271	229	185	95	38	—
Number of prophylaxes	266	225	184	95	38	808
Number of extractions: Deciduous	233	103	91	26	6	459
Permanent	1	3	0	0	0	4
Number of amalgam fillings: Deciduous	155	46	25	4	0	230
Permanent	427	250	182	112	24	995
Number of cement operations:						
Cement bases	87	12	6	5	0	110
Cement fillings	21	8	0	0	0	29
Synthetics	5	10	17	9	0	41
Ammoniacal silver nitrate						
Number of treatments: Not under fillings	804	586	285	78	21	1774
Under fillings	289	70	32	7	3	401
Time in minutes	11,420	5,804	4,285	2,355	795	—
Average time per child in minutes	42.1	25.3	23.2	24.8	20.9	—

planned as a time and treatment program to study the advisability of following certain operative procedures in dental care for children and the practicability and advantages of periodic dental service programs beginning with school children 6-8 years of age. From the data compiled, the following seem to be the most pertinent findings:

1. In 1944, the treatment group of students 9-11 years of age was found to have nine times as many students with one or more fillings present in their teeth as the nontreatment group of similar age had.

2. The filled deciduous tooth rate in 1942 showed that the group of 119 students in the 6-8 year old treatment group had over eleven times as many fillings in their deciduous teeth as the nontreatment group of similar age had.

3. Because of the more complete treatment rendered the permanent teeth of the students of the treatment group,

Table 8.—Summary of Clinical Services Rendered 185 Students for Three Successive Years

	Treatment Group—185 Students			
Year of treatment	First	Second	Third	Total
Number of children receiving treatment for one or more years	185	185	185	—
Number of prophylaxes	183	181	184	548
Number of extractions: Deciduous	164	78	91	333
Permanent	1	3	0	4
Number of amalgam fillings: Deciduous	103	42	25	170
Permanent	295	209	182	686
Number of cement operations: Cement bases	55	8	6	69
Cement fillings	14	5	0	19
Synthetics	5	4	17	26
Ammoniacal silver nitrate				
Number of treatments: Not under fillings	570	484	285	1339
Under fillings	191	62	32	285
Time in minutes	7,835	4,730	4,285	—
Average time per child in minutes	42.4	25.6	23.2	—

there were found in 1944 nineteen times as many fillings per hundred students in the permanent teeth of the treatment group as were found in a similar age group 9-11 years in 1940 at the beginning of the study.

4. In 1944, the nontreatment group 9-11 years showed ten times the number of permanent teeth lost or indicated for extraction that the treatment group of similar age presented.

5. With the type of limited dental care given the deciduous teeth of the treatment group, 36.4 per cent of the students were found to need additional care of the deciduous teeth at the completion of the study in 1944, while 88 per cent of the students in the nontreatment group of similar age were in need of dental care.

6. By comparison, the dental caries experience of the treatment and nontreatment groups in 1944 was found to be primarily the same.

7. The amount of time required to render yearly dental care of the type set forth in the study plan for 185 students who received annual care for a period of three years was an average of 42.4 minutes per student the first year, 25.6 minutes the second year and 23.2 minutes the third year.

Conclusions

A program wherein a dentist can reexamine his operative work at least annually serves for an evaluation of the quality of dental care rendered his patients and encourages him to an improvement in operative technic. Also, it shows that it is a good procedure to fill all precarious pits and fissures when first observed since, if a year is allowed to lapse, the defects usually develop into carious cavities, and if the cavity outline is not fully extended, caries usually occurs at the junction of the fissure in the enamel and the filling material.

The effectiveness of ammoniacal silver nitrate when applied once a year to proximal cavities in deciduous teeth without subsequent filling is to be reported at a later date by Dr. Ringland.

A program of annual care of the permanent teeth beginning as soon as the first permanent teeth erupt, with protective fillings placed in all pre-carious pits and fissures when first observed, would prevent the loss of practically all permanent teeth. A dental program that provides for periodic dental care is ideal and practical.

The best type of dental care to be rendered children in a service program is that which is complete. If all fillable deciduous teeth had been filled the first year of the study, many deciduous teeth would have been saved and less maintenance treatment, such as the application of silver nitrate or extraction of teeth, would have been necessary. The application of ammoniacal silver nitrate to posterior deciduous teeth without subsequent filling does not seem justified except when the teeth are to be lost within a six-month period.

After determination of the same children's dental health status annually for a period of several years, especially those who are receiving annual treatment, it seems that the most practical approach to the problem of dental care for children is periodic care beginning at an early age and made available at least on a semi-annual basis. Annual care is not satisfactory for a group that has a high caries susceptibility. In many cases of rampant caries, at least three or more visits per year are necessary.—*Tennessee Department of Public Health.*

PENICILLIN IN DENTAL AND ORAL SURGERY

E. Wilfred Fish, M.D., D.D.Sc., D.Sc., London, England*

In the years before World War II, when he was working out the bactericidal properties of the media on which he was cultivating Penicillium notatum, Sir Alexander Fleming would often discuss the possible application of penicillin to dental problems. The Meyerstein Dental Research Laboratory is a small section of the Institute of Pathology and Research—where Professor Fleming does his work—and the early discovery by Fleming that most of the common mouth bacteria are penicillin-sensitive seemed to promise a fruitful field of application to dental disease. It was, however, realized that indiscriminate use of the remedy was likely to lead to disappointment.

At that time, dental research at the Institute was directed toward a precise assessment of the distribution of streptococci in the oral tissues. The conclusion to which these investigations[1] pointed was that in chronic streptococcal infections the organisms are always confined to a necrotic nidus; they are never distributed at large in the living tissue, whether in bone or in soft connective tissue. The two common examples of chronic oral infection are the infected "dead" tooth and chronic marginal gingivitis.

In the first of these conditions, it was found that the organisms are confined to the apical ramifications of the pulp canal of the devitalized tooth or, perhaps, to the necrotic contents of an apical abscess which maintains continuity with these canals and in which the bacteria are confined by a pyogenic membrane. The organisms are never found in the surrounding bone. When there is only an apical "granuloma" and no actual chronic abscess, the bacteria are confined to the root canal itself by a cordon of polymorphonuclear leukocytes around the orifices of this canal, which are often multiple. The granuloma consists of lymphocytes and plasma cells only. There are no bacteria among these round cells unless there has been recent traumatic disturbance of the lesion, as, for example, by extracting the tooth or exploring the canals. The lymphocytes appear to have been attracted by the seepage of bacterial metabolites from the infected canal into the periapical tissues. In fact, these cells have so little cytoplasm that they would be powerless to engulf a streptococcus if they were brought into contact with one; indeed, they would be unlikely to survive.

In the other common chronic infective lesion of the oral tissues, chronic ulceration of the gum margins, the ulceration is maintained by the constant trauma of mastication. It is, of course, true that organisms may be thrust into the tissues from these lesions at any time, and set up either a bacteremia or a localized acute abscess (the so-called pyorrhea abscess) which, on bursting into the sulcus, produces the deep pockets of pyorrhea profunda. Nevertheless, it was found that, if these chronic ulcers of the gum margin were left undisturbed, the bacteria were confined to the débris in the pockets on the surface of the ulcers. Over and upon these infected surfaces, polymorphonuclear leukocytes constantly crawled and engulfed the bacteria. Many of the leukocytes died, producing the

*Institute of Pathology and Research, St. Mary's Hospital.

1. Fish, E. W., and Maclean, I.: Distribution of Oral Streptococci in the Tissues. Brit. D. J. 61:336, September 15, 1936.

pus; but the round-celled granulation tissue base of the ulcer was free from infecting bacteria unless disturbed.[2]

The application of penicillin, therefore, to these two types of chronic infection was obviously a specialized problem and dovetailed in with our survey of the distribution of bacteria in the oral tissues. It was, for example, improbable that general intravenous or intramuscular injection of penicillin would be of value in treating chronic streptococcal lesions of the mouth. On the other hand, topical application seemed very promising.

To examine the marginal ulceration first, a condition so common as to be almost universal, Professor Fleming discovered that, if a pastille containing 500 or 1,000 units of penicillin were allowed to dissolve in the buccal sulcus, and if it were replaced when expended, for a period of forty-eight hours, all penicillin-sensitive organisms disappeared from the mouth. The dose was approximately one pastille every two hours by day and one at night before retiring.

Garrod[3] describes an extensive survey of the sensitivity of mouth organisms to penicillin. After examining not only the ordinary flora of the buccal cavity but also the infecting agents in osteomyelitis and infected compound fractures of the jaw and those from infected gums, he found that the only organisms present which were resistant to penicillin were "*Monilia albicans,* an occasional *Neisseria,* and *Hemophilus.*" The rest, in varying degrees, were all sensitive, including the various strains of mouth streptococci and anaerobic gram-negative bacilli (B. fusiformis and many others unidentified), as well as various gram-positive bacilli.

With this background, MacGregor and Long[4] carried out a test on twenty-five cases of acute ulcerative gingivostomatitis (Vincent's type). They devised two pastilles, containing 500 and 250 units of penicillin, respectively, and these were allowed to dissolve in the mouth without chewing or sucking. Each lasted, on the average, for three-quarters of an hour and was immediately replaced with another. The patients all became asymptomatic in twenty-four hours and the characteristic fetor had gone. The sloughs separated, and all signs of acute inflammation had subsided in forty-eight hours. In each case, treatment was stopped after five days when recovery appeared complete. No adjuvant treatment was adopted; there was no attempt to perform a scaling, syringing or toilet of the mouth. In the three and one-half months' duration of the investigation, no recurrence had been reported. Bacteriologically, in twenty-four hours the spirochetes had disappeared, and in from forty-eight to seventy-two hours the fusiform bacilli had also gone, as also had most other organisms. The finding was controlled by using plain pastilles without penicillin; these had no influence on the course of the disease.

These results hold out the prospect of considerable saving of effort, time and discomfort in the early treatment of the disease. The authors point out, however, that penicillin should not replace the necessity for carrying out a complete toilet of the mouth, including the removal of tartar, the obliteration of pockets, and generally the elimination of those crevices where stagnation favors the growth of saprophytes, and the excision of detached friable gum margins, which are exposed to constant trauma. Nevertheless, the penicillin pastille expedites this treatment, since such treatment must always be delayed until acute symptoms have subsided.

2. Fish, E. W.: Parodontal Disease. London: Eyre & Spottiswood, 1944.

3. Garrod, L. P.: Laboratory Control of Penicillin Treatment. Brit. M. J. 1:528, April 15, 1944.

4. MacGregor, A. B., and Long, D. A.: Use of Penicillin Pastilles in Oral Infections. Brit. M. J. 2:686, November 25, 1944.

The same authors extended the use of the lozenge to cases of streptococcal tonsillitis, with striking results. They were able to control the risk of droplet infection by making a carrier suck a pastille when, for example, he was engaged in midwifery practice. They considered, too, that the pastilles accelerated healing and controlled infection in fractures of the mandible and postextraction wounds.

Mowlem[5] has reported a remarkable series of cases in which he was able to insert chip bone grafts to replace large sections of the jaw, despite a persisting sinus in one case, by subsequent daily irrigations of the wound with penicillin in solution. In another group of cases, he excised large areas of necrosed mandibular bone very freely and obtained primary healing by irrigating the wound with penicillin solution through tubes inserted at the time of the operation. The wounds healed in an average time of ten days.

Here again the clinical results are seen to be predictable on the basis of the distribution of the bacteria in the tissues. Mowlem quotes as a warning the failure of penicillin in a case where a sequestrum was not removed and stresses the fact that penicillin in these cases is no substitute for adequate surgery.

Sometimes timely intervention with penicillin may obviate the necessity for extensive surgical interference. I had a case of compound fracture of the mandible through the socket of a deeply placed, horizontally impacted third molar which illustrated this very strikingly. It is well known that the third molar in such cases would have maintained infection of the wound indefinitely and that its removal would have caused serious disruption of the tissues. There was, however, only slight displacement, and Professor Fleming was called in. He agreed to give intramuscular injections of penicillin every three hours for three days. After this treatment, the wound healed and the fracture united without further incident or infection. The significant feature apparently was that the penicillin arrived before necrosis had set in, and prevented it.

These considerations bring the discussion back to the type of oral infection first mentioned—the infected dead tooth. In this case, as in the case of bone sequestra, the bacteria have a necrotic nidus or crevice, within the tissues, in which they can continue to flourish, not only out of reach of the leukocytes but also immune from any concentration of penicillin sufficient to destroy them.

An attempt was made by Shaw, Sprawson and May[6] to sterilize the infected root canal with penicillin. In only one case out of twenty were they able to get negative bacterial swabs, and in that case only after seven dressings. Indeed, they assert that eleven out of the twenty cases were infected with organisms resistant to penicillin. On the other hand, when radical root surgery has been carried out, penicillin provides an additional factor of safety. After a simple apicoectomy, a tablet of penicillin may be left in the wound and the wound may then be safely sutured, but this treatment could not be expected to make up for a faulty root-filling which leaves a crevice at the site of amputation. When a dental cyst has been removed, together with the apex of the root of the tooth responsible, the large cavity which remains becomes filled with blood. The risk of the hematoma becoming infected is probably much diminished if penicillin is left in the wound, so that immediate suture may be attempted. We await a larger series of cases.

5. Mowlem, Rainsford: Surgery and Penicillin in Mandibular Infection. Brit. M. J. 1:517, April 15, 1944.

6. Shaw, F. E.; Sprawson, E., and May, H. B.: Bacteriological Examination of Infected Dental Pulp Canals and Use of Penicillin in Pulp-Canal Therapy. Brit. M. J. 1:551, April 21, 1945.

We have even used penicillin in the replantation of two teeth—one an infected lower molar and one a lower bicuspid—with apparent success. The gum margin around the affected tooth was first sterilized by a light sweep of the actual cautery carried around the tooth to prevent infection of the surrounding bone during extraction.[1] After extraction, penicillin was placed in the empty socket and a sterile gauze pack was applied. The extracted tooth was immersed in a solution of penicillin and then held in sterile gauze. The apices of the roots were amputated and the root canals reamed out from the site of amputation. A red hot needle was inserted into each canal to sterilize it, and the canal was filled with cement and sterile amalgam. A hot burnisher was finally passed over the cut ends of the roots, more penicillin was applied, both to the tooth and to the socket, and the tooth was replanted.

A previously prepared splint was cemented into place. When the splint was removed in eight weeks, the tooth was quite firm in both cases. In the molar, which has been replanted for six months, the bone has regenerated and appears roentgenographically to be in close contact with the roots all around. This tooth now carries a bridge to replace its missing neighbor and appears quite healthy, firm and comfortable. The sulcus is of normal depth. In the more recent case, the bicuspid, the bone is rapidly regenerating.

Obviously this approach is purely experimental but it offers an interesting avenue for exploration, for hitherto we have had no reasonably reliable way of dealing with the infected root canals of posterior teeth other than by extraction. Success in replantation depends on the physiologic observation that the hyaline cementum on the cervical two-thirds of the root is impermeable.[7] It therefore only remains to cut off the root apex in a plane parallel to the dentinal tubules (not at an angle to them) and to sterilize and seal the root canals, provided some agent can be found which is innocuous to the tissues and yet will ensure the leukocytes twenty-four hours' start on any chance bacteria on the surface of the implanted root. Penicillin possesses both of these properties, and the space provided by the missing apices is a convenient repository for a half tablet.

Finally, what promises to be one of the most valuable uses of the new drug is its power of rendering the blood stream hostile to a bacterial shower.[8] When a tooth has to be removed for the relief of an acute alveolar abscess, it is a great comfort to know that an injection of 50,000 to 100,000 units of penicillin into the buttock ten minutes before the operation will closely control any spread of infection insofar as the infection is penicillin-sensitive. Particularly is this property of penicillin valuable when any dental interference is called for in a child or an adult with simple noninfective endocarditis.

Before the work of Okell and Elliott was published, I had seen a number of instances where the vegetations on the heart valves became infected, with fatal results, soon after dental extractions had been performed on such patients. Indeed, the sequence was so definite and tragic that, for many years, all surgical interference with the teeth in such cases at St. Mary's Hospital (London) has been prohibited, though it was realized that penicillin would solve the problems as soon as it became clinically available. One would still prefer to postpone any heroic interference with the teeth in a patient with simple endocarditis, but at least there is now some confidence that, if a tooth has to be extracted, a "boost"

7. Stewart-Ross, W.: Permeability of the Cementum and Its Reaction to Irritation. Brit. D. J. 55:177, August 15, 1933.

8. Okell, C. C., and Elliott, S. D.: Bacteremia and Oral Sepsis, with Special Reference to Etiology of Subacute Endocarditis. Lancet 2:869, October 19, 1935.

dose of penicillin, together with cauterization of the periodontal sulcus before extraction, will prevent any spread of infection.

It is necessary to reaffirm that these lines of approach are still very much in the experimental stage. These notes have been compiled only to extend the scope of experimental work in the hope that they will encourage a further exchange of experiences with a drug which opens up so many new avenues of approach to dental problems.—*St. Mary's Hospital, Paddington.*

MAXILLARY BLOCK ANESTHESIA

David Collon, D.D.S., Bremerton, Wash.*

Contributions to the relief of pain in surgery by the use of anesthesia have dramatically flowed from the efforts of men in the field of dentistry. To the honor of those dentists, major and minor surgery can now be performed without fear of pain. Yet today, in the practice of dentistry, there is a neglect of the use of this adjunct to surgery.

Anesthetic Choice

Surgical procedures about the mouth in which the extraction of teeth or operation on the soft tissues and bone are anticipated require a choice of local or general anesthesia. In the greater percentage of cases, it is safe to say that local anesthesia is chosen. The injection producing block anesthesia of the lower jaw is a common procedure and the anesthetic effect is very satisfactory. There seems to be a definite lack of evidence that infiltration anesthesia, as used by the average operator, is as successful as block anesthesia during surgery on or about the maxillary teeth, especially during cavity preparation. The basis for this statement is the fact that there is found in the literature descriptions of intraosseous and subperiosteal types of infiltration anesthesia, methods resorted to in order to obtain a satisfactory anesthetic effect which some operators feel they cannot obtain by the usual infiltration avenue of approach. However, because of the multiple injections frequently required for complete anesthesia in very sensitive areas about the anterior teeth for instance, the usual supraperiosteal infiltration is used for all surgery except cavity preparation. Here the tendency is to prepare the cavity without the benefit of an anesthetic.

Maxillary Block Injection

Nevin and Puterbaugh[1] describe the technic of the maxillary block anesthesia. This injection, when properly executed, is comparable in every respect to the mandibular block. There are few insertions of the needle and the point of penetration is in a relatively painless field. This injection is not often used, because of lack of instruction in its use or because of the fear of complications. Because complications are possible from any invasion of tissue and from deviation from the correct technic, the maxillary block may be accompanied by such difficulties. But there is less possibility of postinjection complication than with the mandibular block, an opinion which is supported by Nevin and Puterbaugh. It is unfortunate that the technic of maxillary block anesthesia is not taught as is the mandibular

*Commander (DC), U. S. Naval Hospital, Puget Sound Navy Yard.

1. Nevin, Mendel, and Puterbaugh, P. G.: Conduction, Infiltration and General Anesthesia in Dentistry. Brooklyn: Dental Items of Interest Publishing Co., 1932.

injection and its routine use established whenever this anesthesia is indicated in the regular practice of dentistry.

Observations on Local Anesthesia

Little attempt has been made to focus the attention of the profession on the benefits of block anesthesia in the maxilla as an adjunct to surgery in general dentistry. The external approach through the sigmoid notch had been used to produce second division block in the treatment of maxillary fractures and other regional operations. However, the possibility of block anesthesia for surgery or cavity preparation, as that employed in the mandible, was not considered.

At this hospital* those patients requiring hospitalization were treated under general and local anesthesia, each case receiving the anesthetic indicated for the particular patient's condition. In the use of local anesthesia, infiltration and block injection methods were used indiscriminately. Choice was governed by the type which would produce the most profound anesthesia. Second and third division block anesthesia, when indicated, was used for reduction of fractures of the upper and lower jaws. The anesthetic of choice in the problem of extractions was the mandibular block. For extraction of the maxillary teeth, infiltration was used.

Because satisfactory infiltration anesthesia called for numerous injections, with all the side effects, the maxillary block seemed indicated. The statements to follow will include the technic evolved during the execution of several hundred maxillary block injections.

Technic of Maxillary Block

To gain successful anesthesia of the maxillary nerve the indicated point of contact is at the entrance into the inferior orbital fissure. Any attempt to deposit the anesthetic posterior to this point may result in complications. A twenty-one gage right angle needle of stainless steel, one and one-half inches long, is used on a Luer syringe. As anticipated depth of penetration of the needle is one and one-fourth inches, a precautionary marker or guide can be placed on the needle.

In determining the point of penetration for the needle, a definite landmark has been established. In the pterygomandibular injection, the bulb of the index finger traces out the external oblique line and its point of greatest depression is located. This is an established step in the execution of this injection. A similar landmark exists for the maxillary block injection.

The maxillary bone on which this landmark is located has an anterior or facial surface which is separated superiorly from the infratemporal or zygomatic surface by the malar bone. Inferiorly these two surfaces are separated by a strong ridge extending upward from the first molar tooth and terminating in the malar process of the maxillary bone. The literature does not designate this area as a distinct anatomic entity. For the purpose of clarity in the description of the technic for the maxillary block, the ridge hereafter will be referred to as the alveolar malar ridge of the maxillary bone. The depression or notch noted on palpation of this ridge will be called the malar notch of the maxillary bone.

The malar notch as a landmark is definite, more so than the depression on the external oblique line of the mandible. The notch is just as significant in its relation to the inferior orbital fissure as is the landmark on the mandible to the mandibular sulcus about the inferior dental foramen. It is easily discernible upon examining any skull.

The bulb of the palpating finger, passed along the alveolar malar ridge, automatically locates the malar notch. With the finger held in this position the advancing needle, barely clearing the

*Bellevue Hospital, New York.

finger tip and lateral to the midline of the finger, will penetrate the mucosa in the mucobuccal fold sufficiently posteriorly to avoid the malar process. The needle is advanced upward and posteriorly along the zygomatic surface of the maxilla avoiding this bony structure and directed sufficiently inward to prevent entrance into the temporal fossa.

A study of this surface of the maxilla in relation to the anatomic structures about the sphenomaxillary fissure and the pterygopalatine fossa will aid the operator more in determining the avenue of penetration than could any mention of degrees of angulation that might be recommended.

When the needle has penetrated the anticipated distance, the anesthetic solution is deposited. The quantity of the anesthetic solution selected should be not less than 4 cc. of a 2 per cent solution.

Injection Complications

It is my opinion that the possibilities of postinjection difficulties are not great. It is naturally assumed that the technic for the maxillary block injection is carried out as aseptically as any procedure about the mouth can be executed. The anesthetic syringe, solution and needle are sterile. The bacterial count and potency of the organisms in the area of needle puncture are reduced by the application of tincture of iodine to the dry surface. After the needle puncture has been made, the complication of injection will result from ignorance of the anatomy of the part involved and deviation from the described technic. The possibility of entering the orbit or of involving the internal maxillary artery is not to be considered. An operator who would so grossly deviate from the injection technic as to invade these fields would be either ignorant or careless.

The complications resulting from imperfect technic are failure of anesthesia and induced hematomas and occasional diplopia.

Failure of Anesthesia.—When making a mandibular block injection, it is not necessary to make actual contact with the nerve. Definite landmarks indicate the avenue to be traveled after penetration of the needle. Although the mandibular sulcus may be missed by injecting high, gravitation of the anesthetic will ultimately bring about anesthesia, unless the error in selection of the point of insertion is too great—superiorly, laterally or inferiorly.

An injection below the mandibular foramen produces an imperfect anesthesia of the nerve. Likewise, an injection below the trunk of the second division of the trigeminal nerve, where it crosses the pterygopalatine fossa, will not produce a satisfactory anesthesia. The anesthetic agent must be deposited in close proximity to the nerve, medially or laterally to the trunk. The quantity of solution necessary is greater than for the mandibular block. It is best to anticipate the use of at least 4 cc. of the anesthetic, unless the injection is directly to the trunk of the nerve. The latitude of error is greater in making this injection because of the difficulty of approach. It is also complicated by the presence of a large amount of adipose tissue. Because gravity plays a part in the distribution of the solution, the early injections were made with the patient seated in the operating chair with the head inclined so that the benefits of gravity directed the fluid toward the trunk of the nerve. As the technic of injection was improved, the head position was not important but there is no contraindication to its use in supplementing variation in needle injection. To prevent invasion of the temporal fossa and the pterygoid plexus of veins, the needle must be advanced closely along the posterior wall of the maxillary sinus. Deposition of the anesthetic in these areas will result in an imperfect anesthesia. Failure to carry the anesthetic to the area of the pterygopalatine ganglia will cause an imperfect anesthesia. The anterior

palatine nerve which descends from the ganglia and passes through the posterior palatine foramen will not be affected and pain will be experienced.

Hematomas. — Hematomas resulting from this injection arise from a penetration of the pterygoid plexus of veins when the needle is permitted to deviate posteriorly from the zygomatic surface of the maxilla. Associated with the hematoma will be an impaired function of the mandible. The bulging hematoma will obstruct the pathway of the coronoid process during opening of the mouth. Resolution of the hematoma in a few days restores normal function. There are no other complications associated with this condition.

Diplopia.—In a small percentage of cases a created diplopia was noted, resulting from the anesthetic possibly affecting the sympathetic fibers controlling the tonicity of the muscles to the eye. The diplopia disappeared as the anesthetic was dissipated by body function. These complications constituted all the untoward results observed during my experience with maxillary block injection.

Indications for Maxillary Block

Patients look with antipathy upon needle injections. Every operator recognizes this and attempts to gain the desired results by simplifying the technic of injection.

Surgery involving large areas of the mouth, such as in alveolectomy, multiple extractions, cysts, fractures and the preparations of cavities in several teeth at one time, seems to indicate block anesthesia. Surgery can be performed on all structures posterior to the cuspid teeth, with the use of only one needle puncture in a relatively painless area—the mucobuccal fold, on a line directly below the lateral margin of the orbit. Structures anterior to and including the cuspid have to be supplemented by the maxillary block of the opposite side or infiltration of the peripheral ends of the second division of the trigeminal nerve on the opposite side.

The injection carries with it all of the benefits of the single injection of the mandibular block. With few injections there is naturally less possibility of infection resulting from needle invasion of body tissue. However, this is not necessarily a valid reason for a single injection technic. There should be no break in the antiseptic chain during any procedure of injection.

Contraindications

In minor operations where regional anesthesia is not required and in cases involving the presence of infection in the area through which the needle is to pass, maxillary block anesthesia is obviously contraindicated in favor of some other anesthetic approach.

Conclusion

The author believes that there is no reason why this injection should not be used, as is the mandibular block, for surgery about the mouth including the preparation of cavities in teeth.—*U. S. Naval Hospital.*

CLINICAL EFFICACY OF POWDER AND PASTE DENTIFRICES

H. B. McCauley, M. J. Sheehy, D. B. Scott, P. H. Keyes, S. J. Fanale and Peter P. Dale, Rochester, N. Y.

A dentifrice is an accessory to the toothbrush in cleaning surfaces of the teeth. As such, its clinical efficacy is a measure of its ability in routine daily brushings to maintain accessible dental surfaces free of accumulations that dull the natural luster of enamel and render the oral cavity unhygienic.

Deposits of varying consistency usually form on tooth surfaces that are not regularly and adequately cleaned. Among them are bacterial films of mucus and materia alba similar to the plaques demonstrated by Williams[1] and a structureless pigmented pellicle described by Manly.[2] These accumulations, which recur variously after removal in a significant percentage of adults, probably account for most of the commonly encountered deposits that may be considered vulnerable to toothbrushing.

The present study is an attempt to determine the comparative effectiveness of toothbrushing utilizing representative proprietary powder and paste dentifrices, founded on (1) the accumulation of pellicle during twelve days of twice daily two-minute brushing and (2) the removal of twenty-four-hour deposits of mucinous film and materia alba by single two-minute brushing.

From the Division of Dental Research, School of Medicine and Dentistry, University of Rochester.

Aided by grants of the Carnegie Corporation of New York, the Eastman Dental Dispensary of Rochester and the Procter and Gamble Company.

1. Williams, J. L.: D. Cosmos 39:169, March 1897.

2. Manly, R. S.: J. D. Res. 22:479, December 1943.

Experimental

Dentifrices selected for investigation were extensively advertised and retailed throughout the United States and were purchased on the open market. Analysis of water-insoluble ingredients by the Bureau of Chemistry of the American Dental Association indicated that the powder dentifrice was 70 to 75 per cent tricalcium phosphate and 15 per cent calcium carbonate. The paste was approximately 38 per cent calcium carbonate, the only water-insoluble substance detected. Neither was currently acceptable to the Council on Dental Therapeutics. Although the composition was subject to change without notice, it is not very likely that abrasive ingredients of samples employed in the study differed materially from each other or from these factors as presented in the findings of the Bureau of Chemistry. Tap water employed as a dentifrice furnished control.

The subjects included twenty-three men and twenty-four women, graduate students and laboratory workers of the School of Medicine and Dentistry. Selection was at random, no effort being made to obtain an age group or persons known to accumulate dental deposits readily. Their ages ranged between 16 and 40 years, the average being the late twenties. All had a normal complement of anterior teeth except one, whose maxillary teeth had been replaced by fixed bridgework.

The procedure required division of the subjects as nearly as possible into equal groups, each of which was assigned the dentifrices in turn and in such sequence that every regimen was

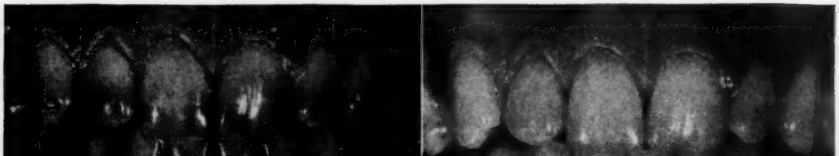

Fig. 1.—Deposition of pigmented pellicle during twelve-day twice daily brushing test with water (above, left) and paste (above, right) dentifrices. Comparative removal of twenty-four-hour mucinous plaque (stained) by single brushings with powder (below, left) and water (below, right). Crosses were inscribed in the pellicle on the central incisors (above, left).

being tested simultaneously. The method was designed to rule out possible seasonal influences on the results and permitted each person to act as his own control, thus substantially eliminating bias due to individual variations in brushing technic, dietary habits and susceptibility to accumulation of surface films.

The dual test of a dentifrice required thirteen days. It began with issuing of the dentifrice, with instructions for use, and a "hard" synthetic-bristle toothbrush of fixed design. This instrument was trimmed straight and contained twelve one-half inch twenty-five-filament tufts arranged in two equal rows to furnish a brushing surface approximately three-eighths inch wide and 1⅛ inches long. With the brush and flour of pumice, the subject was required to clean his teeth in our presence until we were satisfied that all removable stains, plaques and food débris had been eliminated from the surfaces of the six anterior teeth of both jaws. The teeth were then photographed on 35 mm. type A Kodachrome film, using an apparatus that permitted reproduction of exposure factors. Identification of pictures was secured by photographic inclusion of a label indicating the person's name and the serial number of the exposure. After the teeth were photographed, the individual was dismissed for twelve days, during which he was instructed to brush his teeth twice daily for two minutes per brushing, using the dentifrice furnished to him in sufficient quantity to allow uniform distribution over all the teeth throughout each brushing period.

After the twelve-day period, the anterior teeth were examined for the presence of visible pellicle formation. The

relative amount of material in the pellicle and its distribution were recorded on a chart of the labial surface of these teeth by appropriate shading, and the teeth photographed as before. To facilitate recognition of the pellicle, a cross (Fig. 1) was inscribed with pumice and an orangewood point on the labial surfaces of the maxillary central incisor teeth before the exposure. After its completion, the subject was again dismissed, this time with instructions to refrain from brushing the teeth until he reappeared for examination twenty-four hours later.

At the close of the twenty-four hour period, a mucus-disclosing solution[3] containing rose bengal, 6 parts; guinea green B, 4 parts; glycerol, 15 parts; acetic acid, 1 part, and water q.s. 600 parts was carefully applied with a cotton swab to the labial surfaces of the anterior teeth to reveal the presence of materia alba or other accumulations of mucinous and bacterial plaque material. Visual impressions were charted as previously described and the teeth were again photographed. The subject then brushed his teeth in our presence for two minutes by the clock with the assigned dentifrice; after which, the disclosing agent was reapplied, and the degree and extent of remaining plaque material were charted and the teeth rephotographed. At this time, the teeth were thoroughly cleaned with flour of pumice in preparation for the succeeding phase of the experiment, which was promptly begun with a different dentifrice and a new toothbrush.

At the close of the experiment, before-and-after Kodachrome transparencies of each individual in turn were placed on a large opalescent glass illuminator for classification. Six films, the number required to record the effects of brushing with each of the dentifrices in either the twelve-day accumulation test or the twenty-four-hour plaque removal test, were viewed at one time. Criteria for establishing the presence of deposit were ability to visualize the cross on the labial surfaces of the maxillary central incisor teeth in the accumulation test and darkly stained areas in the removal test. Films giving no evidence of deposit on accessible surfaces of the twelve anterior teeth were placed in category 0. Remaining transparencies, according to the comparative degree of accumulation disclosed in them, were assigned to categories 1, 2 and 3. Independent tabulation of the impressions recorded on the charts at the time that the photographs were made provided a convenient check.

3. Bender, D. V.: U. S. Patent 2,151,495. Chem. Abstr. 33:5132, 1939.

Findings

The results are indicated in Tables 1 and 2 and in Figure 2. All but eight subjects satisfactorily completed the entire experiment. Of forty-seven persons examined in twelve-day accumulation tests, twenty developed pigmented deposits. These films were gray-brown or brown and were preferentially distributed over the middle and incisive third of the anterior teeth. Of twenty-eight habitual tobacco smokers, seventeen developed the pellicle. Deposition occurred predominantly under the control (water) dentifrice régime, but was not entirely prevented by use of the commercial dentifrices in the same individuals. (Table 1.) Visible accumulations (Fig. 1) were present in eighteen of forty-four persons using the control dentifrice, in

Table 1.—Twelve-Day Accumulation of Pigmented Pellicle on Anterior Teeth of Persons Using Powder and Paste Dentifrices in Twice Daily Brushing

Dentifrice	Number of Persons Examined	Distribution of Persons by Degree of Pellicle Accumulation			
		0	1	2	3
Water	44	26	7	6	5
Powder	47	46	1	0	0
Paste	46	42	4	0	0

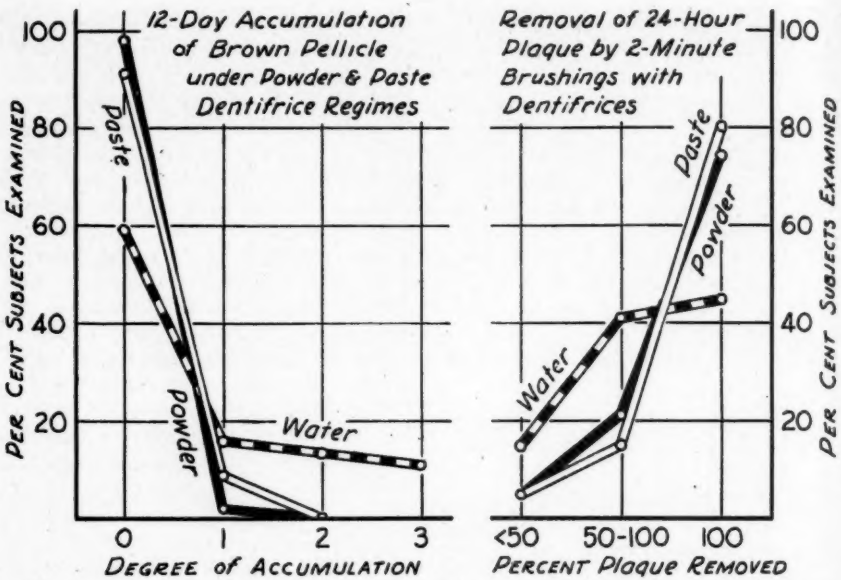

Fig. 2.—Distribution of subjects by degree of pigmented pellicle accumulation (left) and extent of removal of twenty-four-hour mucinous deposit (right) when powder, paste and control (water) dentifrices were used.

one of forty-seven using the powder and in four of forty-six using the paste.

In the absence of toothbrushing for a twenty-four-hour period, all subjects developed deposits of mucinous film and materia alba as indicated by the mucus-disclosing solution. Complete removal of plaque material from accessible surfaces of the anterior teeth by a two-minute brushing occurred in seventeen of thirty-nine subjects using water, in thirty-one of forty-two using the powder and in thirty-one of thirty-nine using the paste. (Table 2.) Photographs illustrating the comparative effects of use of the dentifrices and of water as a dentifrice are presented in Figure 1.

Continued brushing with the paste dentifrice was associated with complaints of an inflammatory reaction of the oral mucosa, mild in twelve, moderate in eleven and severe in thirteen of forty-eight persons from their own description. Of the same individuals, ten reported mild reactions, twelve moderate and five severe when using the assigned toothbrush and tap water under comparable conditions.

Comment

Though derived from a categorical distribution of photographs according to estimates of the degree of tooth film deposition visualized in them, the results agreed satisfactorily with those of a similar classification of direct impressions charted at the time that the photographs were made. Differences between the percentages of individuals in which visible pellicle formation was prevented under the powder and paste régimes in accumulation tests (Fig. 2, left) are probably not significant; nor are those between the percentages expressing the efficacy of the dentifrices in completely removing twenty-four-hour deposits of plaque material (Fig. 2, right). The inadequacy of water as a dentifrice

Table 2.—Removal of Twenty-Four-Hour Deposits of Mucinous Film and Materia Alba by Two-Minute Brushing with Powder and Paste Dentifrices

Dentifrice	Number of Persons	Distribution of Persons by Extent of Removal				
		Complete 100%	3rd-1st Degree 65%	2nd-1st Degree 50%	3rd-2nd Degree 35%	Unchanged 35%
Water	39	17	6	10	3	3
Powder	42	31	4	5	0	2
Paste	39	31	3	3	0	2

Percentages represent gross approximations.

is apparent in the findings that 41 per cent of the subjects in which it was tested accumulated a pigmented pellicle in twelve days and that only 44 per cent completely removed twenty-four-hour deposits of mucinous film and materia alba in two minutes of brushing.

The results appear to warrant deductions as follows: (1) that use of an insufficiently abrasive dentifrice favors the production of a pigmented pellicle and (2) that a dentifrice, to be clinically satisfactory, must possess some degree of abrasiveness. Confirmatory evidence may be found in reports of Manly,[3] Thomssen,[4] Head[5] and Howitt, Fleming and Simonton,[6] all of whom observed pellicles under conditions similar to those under which pigmented pellicles were produced in this experiment. According to Manly, if the abrasiveness, as regards dentin, of the powder dentifrice used in this study were arbitrarily fixed at 100, the paste might be expected to register 90, and water, by the same reasoning, would be 0.

Inflammatory reactions of the oral mucosa to brushing with the paste dentifrice might lead one to anticipate decrease of its effectiveness. No such influence is readily apparent in the findings.

4. Thomssen, E. G.: Deutsche Parfumerie Ztg. 9:7, 1923.

5. Head, J.: Modern Dentistry. Philadelphia: W. B. Saunders & Co., 1917, p. 64.

6. Howitt, Beatrice F.; Fleming, W. C., and Simonton, F. V.: Study of Effects upon Hygiene and Microbiology of Mouth of Various Diets, with and Without Use of Toothbrush. D. Cosmos 70:575, June 1928.

Summary

A powder and a paste dentifrice were subjected to clinical tests for efficacy in forty-seven adults. These tests were founded on the accumulation of a pigmented pellicle during twelve days of twice-daily two-minute toothbrushing, and the removal of twenty-four-hour deposits of mucinous film and materia alba by a single two-minute brushing. Two per cent of persons using the powder and 8 per cent using the paste developed pigmented pellicles in the twelve-day test. Using the control dentifrice of tap water, 41 per cent produced similar deposits. Complete removal of twenty-four-hour accretions by two-minute brushings occurred in 74 per cent of subjects using the powder; in 79 per cent using the paste, and in 44 per cent using the water. Use of an insufficiently abrasive dentifrice favors the production of a pigmented pellicle.—*School of Medicine and Dentistry, University of Rochester.*

METHODS OF PAYMENT FOR DENTAL CARE

John Oppie McCall, D.D.S., New York

At a time when thoughts are centered on the postwar era and when earnest search is being made by the dental profession for means to expand dental service for the American people, it seems appropriate to examine all factors in the postwar dental program. Each item needs scrutiny and must pass muster as to its validity and indispensability.

It will be generally agreed that complete dental care for all is the desideratum and that any service given must be of high quality and must be provided with all reasonable economy. As affecting the attainment of this objective, let us examine, among procedures now in vogue, conventional private office practice as the mechanism for providing dental service and the "fee for service" as the mechanism of payment. These are traditional devices with which dentistry has grown up. What is more natural than to think of them as unchangeable except as the change might be for something dangerous and injurious to both profession and public? The question is: Are there suitable alternatives?

Let us consider first the "fee for service," or payment on an item-by-item basis, as a mechanism for paying for dental care. This is probably the greatest present barrier between patient and dentist, surpassing in the majority of instances that great bugaboo pain. The truth of this statement will probably not be readily admitted, but reflection will indicate its validity. The trouble here is not so much that people are unwilling to pay for dental service, but that they want to say how much they are going to purchase. The opportunity for exercising this option arises from the fact that dental treatment required for the complete care of the mouth very often consists of a number of separate items. Also, dental treatment can often be postponed. It is not like an appendectomy, in which it is everything or nothing, so to speak, and which must be performed when symptoms indicate the need.

Of course, not all systemic ills have the urgency, as well as the indivisibility into separate items, of acute appendicitis. Treatment of many disturbances of the body can be postponed, and here too the fee-for-service problem comes up. It may be worth while, in studying this question, to consider how this mechanism affects medical care. The Senate Committee on Wartime Health and Education[1] recently reported:

> Evidence . . . leads the subcommittee to conclude that the "pay-as-you-go" or fee-for-service system, which is now the predominant method of payment for medical services, is not well suited to the needs of most people or to the widest possible distribution of high-quality medical care. It tends to keep people away from the doctor until illness has reached a stage where treatment is likely to be prolonged and medical bills large. It deters patients from seeking services which are sometimes essential, such as specialist care, laboratory and x-ray examinations, and hospitalization. Individuals with low incomes, whose need is greatest, are most likely to postpone or forego diagnosis and treatment.

Is this not capable of being readily paraphrased in dental terms and experience?

At any rate, when the patient does go to the dentist, he picks among the items set forth by the dentist those he chooses,

1. Interim Report from the Subcommittee on Wartime Health and Education to the Committee on Education and Labor, United States Senate. United States Government Printing Office, Washington, 1944; reprinted in J.A.D.A. 32:282, March 1, 1945.

being governed by a consideration of what *he* thinks is important or desirable and by the determination of the services that he can fit into the sum which he is willing to pay for his dental care.

The knowledge that the proposed dental visit will make it necessary for the patient to evaluate the economic desirability of a number of items influences even his preliminary approach to the dentist. In other words, when the patient knows that he needs dental care and that he should consult the dentist to see whether he does need treatment, he thinks of the visit with some financial qualms. He wonders how much unsuspected derangement the dentist is going to find. He wonders what the fees will be for service the need of which he is already aware. Fearful that the amount will be more than he wishes to pay (an arbitrary figure set up in his own mind in advance with no reference to need or the possible benefits to be derived from the service), he usually postpones the visit until driven to it, even though realizing vaguely that postponement may mean only a more complex and expensive treatment.

At the risk of "laboring" the point, let us consider a hypothetical case. Mr. Jones needs some dental service and realizes that his teeth have been neglected for some time (this neglect was probably due in large part to economic conditions). Does the thought of pain hold him back? Not in the majority of instances, since he knows that worse things lie ahead if he waits longer. Back in his mind, but not very far back, is the thought, "I wonder how much it will cost?"

In spite of misgivings, he decides to go to his dentist. His teeth and gingivae are examined and his teeth x-rayed (he wonders if that x-ray examination was really necessary). Dr. Brown tells him that he needs amalgam fillings, gold inlays, gingival treatments and a posterior fixed bridge. Fees are stated for each of these services. Mr. Jones feels that the total is more than he is willing to pay at this time, so he decides to purchase the amalgam fillings, substitute amalgam for the gold inlays, although Dr. Brown has told him that it is not possible to restore contact and form satisfactorily with amalgam in the broken down teeth for which the inlays were recommended, and do without the bridge altogether. Dr. Brown acquiesces since he can do nothing else. He gives the service agreed on. What is the result? Dr. Brown collects his fee, presumably, but Mr. Jones is in for more trouble because his mouth was not properly rehabilitated as recommended.

But this is not all the story: This barrier of the fee for service has already kept Mr. Jones from making those regular visits to Dr. Brown that are recognized as essential in a preventive program. Much of the damage which his teeth and periodontal structures suffered could have been prevented or at least held to an easily controlled minimum had he made regular visits for preventive service. He will from now on go through a succession of such scattered visits and these will be sprinkled with extractions on a mounting scale, and with possible experience along the way with some focal infection. He will wind up with full upper and lower dentures and only that to show for the considerable amount of money that he has spent on the intermediate services.

What are the alternatives for the fee for service? One is the annual fixed fee covering all service needed. On the voluntary basis, this may be either an arrangement with individual patients or, on a larger scale, a group prepayment plan, commonly spoken of as voluntary health insurance. On the involuntary basis, it becomes either a tax-supported plan or compulsory health insurance, itself actually a form of taxation.

There has been some experimentation with the voluntary fixed-fee system by dentists. Its success is dependent on the enrollment of a considerable group of patients and their continuance as a group in the plan over a period of years. Necessary also is the complete rehabilitation of each mouth in the beginning with the expectation that all in the group will have a fairly uniform and fairly small need for service from that point on. The difficulties of this plan on a voluntary basis are that people are often reluctant to have the complete rehabilitation required in the beginning as this may be expensive whether on a fee-for-service or other basis, and tend to appraise, whether accurately or not, their need for service, and thus only the worst risks enroll. Even those enrolled tend to drop out of the plan as time goes on, leaving so few in the group that the plan becomes a liability rather than an asset to the dentist. All this is a problem to be solved through health education.

Another disadvantage of the voluntary plan is the expense involved in acquiring members for the group. This expense may be in the form of time spent by the dentist in persuading his patients to join the plan or, in the case of a voluntary health insurance plan, may be expenditures required for the same purpose plus consequent administrative expense. The voluntary prepayment plan is regarded as being in the American tradition and should appeal to a vast number of people if properly presented.

Whatever the form that the plan eventually takes, it should, as far as possible, get away from the fee-for-service basis. Only then will it be possible for the dentist to deal with the patient in a way that eliminates the question of self-interest for the dentist in his recommendation of services to be performed and permits full rehabilitation for each patient.

This leads on to the question of method of compensation for the dentist. His income must be guaranteed at a suitable level so that he may be free to do those things that he believes are in the best interest of the patient. I will come back to this later.

Consider now private office practice, with one dentist in each office. Here, we have group practice and the clinic as alternatives. Neither of these is new, but neither has been developed to its full potential usefulness. Both of these mechanisms have the advantage of savings in overhead, a very real benefit. Other features that are readily available in each, but are not always used to the extent desirable, are consultations between different members of the group and specialization of services on a department basis. These are the features that are today, in the field of medical care, making of the larger hospitals the *ne plus ultra* of medical service. The same principle, and with the same advantages, can be utilized in the dental field.

Clinics were first organized to give free treatment to the needy. Professional staffs served without pay. Facilities were inadequate and therapy was limited because there was always more need than there was money to meet it. Clinics have usually been operated by welfare agencies whose administrative officers took quality of care for granted and pressed for quantity of service. Laboring under all these handicaps, it is no wonder that clinics in general have gained a dubious reputation.

But poor service is not necessarily inherent in the clinic setup. With application of the group practice principle (service provided in well-organized departments), supervision by specially qualified practitioners, consultation with experts in each field freely available and adequate compensation for the staff, clinics are capable of delivering the finest service. The reduction of overhead and advantageous purchasing made possible

in the clinic provide for properly attainable economy.

The private group practice may or may not be set up specifically to reduce costs to the patient. It is primarily a means for bringing together a group of specialists so that complete care in one establishment may be made available to those who seek its service. Here too, as in the clinic, there is opportunity for consultation. At the same time, it offers economies which commend it to the practitioners who may participate, and it may well be a means of reducing costs to the considerable body of people who seek private office care, but who must, in popular phraseology, budget their expenses.

In either the group practice or the clinic, it is necessary to plan for remuneration of the dentist. This must naturally be provided on a salary basis, but it need not be on such a level as to be unattractive if the service is properly set up. Economies will be gained by reducing overhead and pooling facilities, not necessarily by low salaries. Sensible administration recognizes that suitable salaries are the *sine qua non* for quality service. At the least, compensation should, as far as possible, be unrelated to the amount of service given to the individual patient.

Reverting briefly to the discussion of fee for service, I quote from a booklet recently issued, "Principles of a Nation-Wide Health Program,"[2] in which it is stated that the fee-for-service plan, in addition to other disadvantages, is costly to administer and is unfavorable to the use of preventive service. The dentist may not, at first glance, appreciate the significance of the statement regarding high cost of administration. This will become apparent if to time spent in bookkeeping and getting out bills are added bad debts and slow payments, those well-known accompaniments of the average private practice conducted on the fee-for-service basis. When, in addition to administrative expense, we consider quality, almost inevitably affected if low fees are quoted, and the question of preventive service, frequently insufficient on the fee-for-service basis, we see the desirability of studying earnestly the possible alternatives to this method of financing dental care.

The relationship of fee-for-service to preventive service is strikingly brought out by the well-known fact that, under that system, fees for prosthetic service (replacement of teeth lost through disease) are invariably higher for the dentist's time involved than fees for fillings, prophylaxis and other preventive and protective services.

Another question arises when we review all aspects of the question as to how dental care should be provided. This has to do with safeguards that should be set up in the operation of community programs in which the dental services are to be rendered in private offices, as is often necessary in the smaller towns. We are dealing here with a situation in which the municipality or a welfare organization pays the dentist for his service, the patients being unable to pay or able to pay only part of the fee. Human nature being what it is, some sort of check on the work done for these patients as to amount and quality and charges for the work, if on a fee-for-service basis, has been found to be desirable. The value of supervision, here referred to, has been amply demonstrated in school-clinic services provided by many of the larger cities, as also in other services for which the dentist is paid in part or altogether by some welfare or other agency.

Supervision of dental service performed in clinics has come to be taken for granted. Supervision in the private office may come as something of a shock

2. Principles of Nation-Wide Health Program. New York: Committee on Medical Economics, 1790 Broadway.

to those dentists who have not worked in clinics. Yet the need for such supervision in charitable programs is recognized by the Council on Dental Health of the American Dental Association. I quote from the "Dental Care Plan for Low Income Groups," issued by the Council.

III. Administration of Dental Treatment Programs.—A 3: Dental office programs should be supervised by the dental personnel of the health department or by qualified dentists selected by the state dental director with the advice of the local dental society.

At this point, it will be well to discuss briefly that well-known bugaboo "socialized dentistry." So far as I know, the term has never been clearly defined and it consequently means all things to all people, with unpleasant implications throughout the gamut of the conceptions. I offer as a basic definition of socialized dentistry a paraphrase of a statement in the second preceding paragraph: Socialized dentistry is any organized program for providing dental care in which payment for the service is made partly or entirely by a voluntary or official agency.

Types of programs offering dental service which will come under this heading are those conducted by:

1. Voluntary organizations supported by endowment or by popular contributions; e.g., voluntary hospitals, welfare organizations and endowed clinics.

2. Industries which offer health service supported by funds to which the firm itself contributes. Compensation insurance, as far as it provides treatment for injuries to the teeth and jaws, would come under this heading.

3. Government departments, city, state or national. Under this heading will come dental services provided by city health departments, city and state hospitals and penal institutions, Army and Navy Dental Corps, the Veterans Administration, Children's Bureau, Farm Security Administration, etc.

Compulsory insurance programs providing dental service would constitute socialized dentistry in that the insured individuals would not contribute the entire cost of the service that they would receive.

Voluntary organizations, such as the hospitalization organizations, conducting prepayment programs on an insurance basis, in which the entire cost of the program is met by the annual contributions of the subscribers are in a special category because of the method of financing. Their service is essentially socialized in that all subscribers contribute equally to a common fund, but inequality in amount of service needed may result in some members receiving service the cost of which is greater than their contribution.

It will readily be observed that all of these forms of socialized dentistry except compulsory insurance and prepayment programs are being carried on today and some go back many years. In some, the dentists are paid; in some, they serve with no monetary return; but, in all, the patient receives service for which he either pays nothing or only a part of the fee. Participation of the dentist is always voluntary.

The term "state dentistry" is not often used openly in discussions in this field, but it is obvious that it is often in the minds of the discussers. So far as they mentally apply this term to socialized programs, they are laboring under a misconception. The term "state dentistry" can be applied only to a system in which *all* dentists are involuntarily enrolled in a government program and are unable to engage in private practice. It should be clear that in none of the forms of dentistry to which I have applied the term "socialized," even including that under compulsory insurance, is there involuntary participation by the dentist. None of them can therefore be called state dentistry.

To be sure, many dentists assert that they see in socialized dentistry, especially that provided under compulsory insurance, a reduction of independence of the dentist to the point where he must join the program whether he wishes it or not. Whether this occurs in our country or not depends, in my estimation, on (1) the continuance of private enterprise and retention of its rewards by those engaging in it and (2) the quality of dental care offered in private practice. In other words, I believe that people will prefer care at the hands of the private practitioner as long as they can afford it and as long as he gives service of the highest quality. The same situation will prevail in this field as in the field of education. Education in the United States is as thoroughly socialized as any service that people receive. Boys and girls can go through elementary school and high school paying no tuition, and through city and state colleges paying only a modest tuition. Yet private schools and colleges abound, simply because they educate their students well and because parents of many boys and girls can afford to pay the tuition fees.

It is safe to say that we shall not have state dentistry in this country in any future period that we can foresee. I suggest therefore that all discussions of socialized dentistry be conducted on the basis of the definition here offered. There is already some dental practice on this basis, and there is every prospect that it will increase in coverage in the years immediately ahead. There is no reason that this should be unsatisfactory to dentists from the standpoint of either conditions of practice or financial return.

I see two things that are needed in the effort to secure satisfaction in socialized dentistry. One is for dentists, through appropriate committees of their dental societies, to come forward to offer their cooperation to organizations that are or may become interested in setting up dental programs. They should go into these conferences on a basis of desiring to find what the agencies believe they want, avoiding any action which would create the impression that they wish to develop a program designed to bring more patients into the private office. The other requisite is that dentists consider carefully all legitimate ways of saving the community money on the dental bill of those to be served, to make sure that the beneficiaries get the service that is contracted for and that it is of high quality.

When organizations either voluntary or governmental are given those assurances and are made aware as to what is involved in the way of education and basic qualifications for turning out high-grade dentists, they will make provision to satisfy the needs for successful socialized dentistry. That this has not happened in all instances in the past is due in large part to the fact that the dental profession has followed the lead of the medical profession in asserting that the indigent person can always get the care he needs regardless of ability to pay for it and the accompanying statement that the physician compensates for his losses on charity cases by his charges to his more prosperous patients. Acting on those assertions, social agencies have simply tried to organize the time that they assumed the physician and dentist would give to charity, and, for a long time, proposed to pay them what the needy patients would have paid individually—little or nothing. The unfairness and actual danger of this position is being recognized today and there is a gradual reorientation going on which will lead to better conditions in the future. Willingness to see the legitimate objectives of those planning for extension of dental care to those not otherwise able to get it, to the extent required for their health needs, will go far toward getting for dentistry its proper place in the sun.

I have not as yet mentioned the ele-

ment of efficiency, expressed in the proper use of auxiliary personnel, as it affects the dental bill of the community on either a private office or a clinic basis. That the dentist can make better use of his time, in other words deliver more dental service in a given period, when he employs a dental hygienist and a competent chair assistant is well known. Most welfare and other organizations giving dental service recognize this and provide the dentists on their staffs with such aid. In the private office, full efficiency demands two chairs as the minimum setup for one dentist, even though the second chair may not be used full time. In a group practice in which two or more dentists are associated, the extra chair or chairs may be more fully used with corresponding reduction in overhead. All proper devices should be used to reduce costs.

That large proportion of the public not now receiving dental care, when assured that dentists are doing all that they properly can to reduce the costs of dental service, will, I am convinced from remarks made in more than one conference, be glad to have dentists receive a commensurate remuneration for their services. Such assurance will go far in aiding the so-called educational program which is intended to show the public the value of mouth health and induce them to seek it. When once convinced that dental service is being offered them on the basis of all properly attainable economy, people will not say that they cannot afford it and ask the dentist to perform the service for less, but will find ways of organization and financing that will bring them the needed dental service and the dentist his due.—*422 East Seventy-Second Street.*

CHEMICAL CHANGES IN THE TEETH AFTER ERUPTION

Henry M. Leicester, Ph.D., San Francisco*

Early experiments concerning chemical changes occurring in teeth after eruption were largely histologic and permeability studies designed to determine whether enamel and dentin were "vital" tissues. While it cannot be said that the majority of these experiments were well designed, or that they led to any decisive conclusions, there accumulated a certain amount of evidence pointing the way to more objective studies.

A distinction between dentin and enamel was drawn early in this work. It was relatively easy to show that with increasing age dentin showed changes in the ease with which it was penetrated by dyes. This was very clear in the teeth of marsupials, since these have tubules from the dentin which penetrate the enamel. Sprawson[1] found that, in young kangaroos, methylene blue and acid fuchsin penetrated through the dentin and three-fourths of the way into the enamel, while in older animals the tubules became occluded and permeability was slight.

Beust found an analogous decrease in permeability of human dentin to dyes

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*From the Department of Physiological Sciences, School of Dentistry, College of Physicians and Surgeons.

1. Sprawson, E.: Histological Evidence of the Organic Content and Reactions of Marsupial Enamel, with a Note on Human Enamel. Proc. Roy. Soc. Med. Sec. Odont. 106:376, June 1930.

with increasing age. He stressed the biologic rather than the pathologic nature of these changes, ascribing them to increased calcification in the tubules. He emphasized that this process, which he called sclerotization, was hastened by irritation of, or injury to, the tooth, and that this explained the existence of areas of decreased permeability under a carious lesion.[2] In 1932, Fish[3] confirmed that tubules which had been opened at the periphery became closed from the pulpal end by a calcified barrier, which resulted in a translucent zone of hypercalcification in many cases. In 1934, Beust[4] again pointed out the formation of a hypercalcified zone of sclerosed dentin in teeth in which caries developed slowly, and the absence of this zone when caries had developed rapidly. He regarded development of this zone as a defense mechanism of the tooth. Thomas[5] showed that young dentin is decidedly permeable to phenol which contains eosin Y, while metamorphosed dentin (the sclerosed dentin of Beust), which appears dark in transmitted light, is relatively impermeable. Penetration was apparently through the tubules, since the curve of the tubules from the base of a cavity to the pulp was followed by the dye.

Thomas[6] recently correlated this type of study with an investigation of pain transmission, showing that cutting into the area of "protective metamorphosis" (Bodecker's term) produced little pain, but that, as soon as this area was passed, pain was felt. That pain was caused by transmission of the stimulus along the intact dentinal tubules would be further evidence that these tubules had been sealed off in the metamorphosed area.

Studies on enamel were more difficult. The idea held by most of the earlier histologists that enamel was a completely inert substance, entirely lacking organic matter, was a challenge to many workers who believed that this view could not be correct. They performed many experiments with dyes in an attempt to prove that pathways for metabolic exchange existed and hence that enamel, like other body tissues, was subject to systemic control. Owing to poor technics and the influence of preconceived ideas, contradictory results were obtained, but in the course of these studies it was often noted that the resistance of the erupted enamel to penetration by dyes increased with age.

Fish[7] showed that dyes placed in the pulp of the teeth of young dogs diffused through the dentin into the enamel, and in very young animals even reached the cuticle. Because permeability decreased as the dog grew older, especially in the surface layers of the enamel, in these older dogs the dye penetrated only one-third to two-thirds of the enamel thickness. He also noted that, when dye was placed on the enamel surface, penetration varied from 100 per cent in young dogs to no penetration at all in older animals. He concluded that the change came from without, as far as the enamel was concerned, but he also assumed that the dye penetrated through the enamel protein, keratin, since it diffused along

2. Beust, T. B.: Physiological Changes in the Dentin. J. D. Res. 11:267, April 1931. Reactions of the Dentinal Fibril to External Irritation. J.A.D.A. 18:1060, June 1931. Posteruptive Changes in the Maturation of Teeth. J.A.D.A. 18:2186, November 1931.

3. Fish, E. W.: Pathology of the Dentin and Dental Pulp. Brit. D. J. 53:351, October 1, 1932.

4. Beust, T. B.: Permeability Tests on Teeth with Pulpal Involvement. J. D. Res. 14:93, April 1934. Demonstration of Sclerosis of Dentin in Tooth Maturation and Caries. D. Cosmos 76:305, March 1934.

5. Thomas, B. O. A.: Penetration of Phenol in Tooth Structure. J. D. Res. 20:435, October 1941.

6. Thomas, B. O. A.: Protective Metamorphosis of the Dentin: Its Relationship to Pain. J.A.D.A. 31:459, April 1944.

7. Fish, E. W.: Age Changes in the Permeability of Dog Enamel. J. Physiol. 72:321, July 1931.

the prism sheaths. He thought that this protein grew more horny and thus less permeable with increasing age. This change does not necessarily involve the influence of an external factor.

Jeffery,[8] by driving acid fuchsin or methylene blue into dogs' teeth by cataphoresis, showed that dentin had almost no resistance, but that the resistance of enamel to cataphoretic penetration increased with age. He showed that penetration was more difficult from the surface of enamel than from the side of the dentin. Like Fish, he indicated that the dye diffused through the prism sheath. Results with human teeth were less clear, but here again penetration occurred through the prism sheaths, as well as through the organic matter of the spindles, tufts and lamellae. The slower penetration into human than into dog teeth is probably due to the greater density of the former, but it seems logical to assume that essentially the same type of process is occurring in each of the cases.

Experiments of this type indicate a progressive change in enamel after eruption. On the basis of studies of decalcification of enamel at various stages during its formation, Chase[9] concluded that, three months after eruption of the tooth, the organic matrix had assumed a form which did not change during the rest of the life of the tooth. However, resistance to hydrolysis by acids is not a delicate test, especially for such unreactive proteins as keratins, and a gradual increase in keratinization of the matrix would not be detectable by Chase's technic. That such a change may occur has been indicated again by the recent work of Frisbie, Nuckolls and Saunders, who, on the basis of histologic staining reactions, expressed the opinion that the enamel matrix undergoes progressive maturation with age until eventually its structural elements can be distinguished only with difficulty.[10] This is interpreted as due to a progressive dehydration, which is thought to be responsible also for the increasing caries resistance of enamel with age. It is of interest to note that Stones[11] indicated that cementum permeability also decreases with age.

Thus permeability studies indicate clearly that with increasing age dentin becomes denser and less permeable, and that enamel probably undergoes a similar change. The mechanisms are apparently different. In the dentin there is a sealing off of the dentinal tubules by the calcification of their contents, a reaction analogous to secondary dentin formation. In the enamel there is an increasing resistance to penetration which may be due to progressive keratinization of the protein matrix.

Direct evaluation of the physical properties of tooth tissues tends to confirm these ideas. Burg[12] showed that the hardness of dentin increases with increasing age of the teeth. Zieger[13] confirmed this observation. Hodge and McKay[14] showed that the dentinal area immediately under a carious lesion was as hard as the inner portion of enamel; that is, about twice as hard as normal dentin.

8. Jeffery, G. E. S.: Permeability of Enamel. Brit. D. J. 53:65, July 15, 1932.

9. Chase, S. W.: Nature of the Enamel Matrix at Different Ages. J.A.D.A. 22:1343, August 1935.

10. Frisbie, H. E.; Nuckolls, James, and Saunders, J. B. de C. M.: Distribution of the Organic Matrix of the Enamel in the Human Tooth and Its Relationship to the Histopathology of Caries. J. Am. Col. Den. 11: 243, September 1944.

11. Stones, H. H.: Permeability of Cementum. Brit. D. J. 56:273, March 15, 1934.

12. Burg, F.: New Specific Hardness Determinations of the Hard Substance of the Teeth. Dissertation, Halle, 1921.

13. Zieger, W.: Determination of Hardness in Teeth. Dissertation, Halle, 1934.

14. Hodge, H. C., and McKay, H.: Microhardness of Teeth. J.A.D.A. 20:227, February 1933.

Van Huysen[15] measured the x-ray absorption of tooth slabs under standard conditions and found an increased absorption with age. This increase in absorption must have been due to an increase in degree of calcification of the dentin. Later, Van Huysen, Hodge and Warren[16] noted increased density under areas of attrition, thus confirming the histologic investigations of Beust[4] and indicating a response to a pathologic stimulus.

In the enamel, Burg[12] noted that the hardest portion was the outer surface. Karlstrom,[17] in an extended study of the effect of various conditions on the hardness of enamel, showed that, in unerupted teeth, the outer layer of enamel is of the same degree of hardness as the outer layer in erupted teeth, but that the inner layers are not so hard as they later become, thus indicating a change from within as the teeth age. He used this as an argument against remineralization. He held that recently erupted deciduous teeth were less hard than those that had nearly completed their period of function. Studies of the specific gravity of different areas of the tooth[18] confirmed these results. The highest specific gravity was found at the enamel surface in both erupted and unerupted teeth, and the specific gravity of the tooth increased slowly with age, being about 0.5 per cent higher at 40-49 years than at 10-19 years. Enamel hardness appeared to decrease slightly with age, probably owing to an increase in the number of cracks in the older enamel. Actually, according to Karlstrom, it remained nearly constant.

The approach to the problem of chemical change with age which seems to be the most obvious, namely, direct chemical analysis, has been little used, chiefly because of the great uncertainty as to the normal composition of a given tooth under varying conditions. The past history of a tooth is seldom known, and there may be many factors which have caused slight variations in composition. In addition, of the large numbers of analyses of tooth composition which have been made, few have been accurate, and the various technics and concepts of accuracy which have been applied have made the different results unsatisfactory for use in comparative studies. When the studies are made by one investigator, the results have greater significance for comparative purposes.

Lundstrom[19] analyzed whole teeth, an undesirable procedure in the majority of cases, since dentin and enamel are different tissues and respond differently to the same stimulus. She found an increase of 50 per cent in the magnesium content and a decrease of 20-50 per cent in the carbon dioxide content, together with a slight increase in phosphorus and a fair degree of constancy in calcium content, as the age of the tooth increased. Murray[20] noted a variation with age in the calcium : magnesium ratio in animals of various species. Several investigators claimed to find variations with age, but they did not use enough teeth to draw statistically valid

15. Van Huysen, G.: Roentgen-Ray Absorption Per Unit Thickness of Dentin. D. Cosmos 78:272, March 1936.

16. Van Huysen, G.; Hodge, H. C., and Warren, S. L.: Quantitative Roentgeno-Densitometric Study of the Changes in Teeth Due to Attrition. J. D. Res. 16:243, June 1937.

17. Karlstrom, S.: Physical, Physiological and Pathological Studies of Dental Enamel. Stockholm: A. B. Fahlcrantz Boktryckeri, 1931, p. 72.

18. Ibid., pp. 53, 129.

19. Lundstrom, H. M.: Age Changes in Inorganic Constituents of Sound Human Teeth. Am. J. Med. Sc. 182:152, July 1931.

20. Murray, M. M.: Chemical Composition of Teeth. IV. The Calcium, Magnesium and Phosphorus Content of the Teeth of Different Animals. A Brief Consideration of the Mechanism of Calcification. Biochem. J. 30:1567, September 1936.

conclusions.[21-23] Thus, according to the rather slight evidence available, the greatest variation is to be found in the magnesium content of teeth under normal conditions of aging.

Popowa[24] showed that injection of small amounts of thallium nitrate over a prolonged period decreases the calcium content of molar teeth. Urabe,[25] using thallium acetate, also found a decrease in inorganic content and an increase in water and organic matter. The mechanism of such experimental changes in composition is entirely unknown, but they indicate the possibility of alterations in tooth composition.

The foregoing data demonstrate that changes do occur normally in the teeth with age. The changes, which apparently occur chiefly in the dentin, are probably due to a secondary calcification in the dentinal tubules. Exact, quantitative data are greatly needed before any acceptable theory can be formulated regarding the mechanism by which these changes occur and the effect of varying conditions upon them.

It has long been recognized that, in addition to these normal changes, others may be brought about by external conditions. The existence of such influences may be inferred from the studies already mentioned on the permeability of the enamel to dyes from the outer surface. This type of study received great impetus from the claim of Andresen[26] that he could cause a recalcification, or remineralization, of the surface of a tooth in which caries had been initiated, by application of a remineralizing paste composed of tartaric acid, gelatin, tricalcium phosphate, calcium carbonate, magnesium carbonate, sodium chloride and sodium bicarbonate. This paste was supposed to resemble saliva, which contains some similar substances, and which Andresen thought acted as a protective agent and remineralized the enamel surface under normal conditions. He maintained that the organic matrix of the tooth had an organizing function in restoring something approximating the normal surface of the tooth. On theoretical grounds, his explanation was unconvincing, and a large amount of experimental work in the next ten years failed to support his contentions adequately.[27-30] The subject of remineralization became of less interest, and the number of publications on the matter decreased, though, as recently as 1943, Maj asserted that decalcified cow enamel will take up calcium and phos-

21. Fish, E. W.: Experimental Investigation of Enamel, Dentin and the Dental Pulp. London: John Bale, Sons & Danielsson, Ltd., 1933.

22. Logan, M. A.: Composition of Cartilage, Bone, Dentin and Enamel. J. Biol. Chem. 110:375, July 1935.

23. Bremer, G.: Methods of Study and Comparative Chemical Analyses on the Teeth of Man, Ape, Dog and Pig. Upsala läkaref. förh. 44:219, 1939.

24. Popowa, G.: Alterations in the Teeth and Jaws After Thallium Feeding. Dissertation, Munich, 1931.

25. Urabe, S.: Influence of Thallium on the Teeth. Acta dermat. (Japan) 27:87, 1936; Chem. Abs. 31:3996, 1937.

26. Andresen, V.: Mineralization and Remineralization of Enamel. Deutsch. Monat. f. Zahnhlk. 39:97, February 1921. Mineralization Cement for Treatment of Incipient Caries. Deutsch. Monat. f. Zahnhlk. 40:707, December 1922. Physiological and Artificial Mineralization of the Enamel. Oslo, 1926.

27. Christ, J.: Two Chapters on the Connection Between Metabolism and the Teeth. I. Remineralization. Zahnarzt. Rundsch. 35: 685, October 3, 1926.

28. Fabian, H.: What Is the Position of Remineralization and the Protective Action of Kalk-Eucerin? Zahnarzt. Rundsch. 35:269, April 18, 1936.

29. Weber, R.: Question of Life in the Hard Tooth Substances and the Remineralization of Enamel. Zahnarzt. Rundsch. 39: 1352, August 3, 1930.

30. Kraus, A.: Experimental De- and Remineralization of Enamel. Deutsch. Monat. f. Zahnhlk. 49:833, September 1931.

phorus from saliva.[31]

The possibility of remineralization under more restricted conditions is greater, and the work of Osborn[32] has shown that redeposition of tricalcium phosphate can occur in a cavity, though the material in this case is not true enamel substance and lacks the crystalline form of the normal hydroxyapatite. Such a precipitate of calcium phosphate can occur easily under a mucin plaque, where a saturated solution of the salt can quickly form. This type of remineralization may be of importance in the initial stages of certain types of caries.

The discovery of the caries reduction resulting from the presence of fluorides in drinking water has led to much experimental work in recent years, a great deal of which has a direct bearing on the subject under consideration. It is not proposed to discuss the effects of fluorination upon caries, since this has been adequately treated elsewhere; but the light that certain experiments have thrown upon the possibility and mechanisms of chemical change from the exterior surface of the tooth has been great, and a revolution in thinking has occurred which promises early results of the greatest importance.

Soon after the caries-preventing action of the fluorides had been discovered, it was noted that topical application of fluoride solutions afforded a method of reducing caries by about 40 per cent,[33] although it was recognized that fluorides ingested during tooth calcification could also be effective. Obviously, topical application of fluorides could produce results only if the substance entered the tooth from the exterior, and numerous subsequent studies showed that enamel could take up this element. Volker *et al.*[34] showed that enamel powder readily took up fluoride in accordance with the Freundlich adsorption isotherm; that is, that true adsorption occurred. Further studies with other elements, mostly in the form of their radioactive isotopes, have shown that adsorption of phosphate,[35-37] sodium,[38] strontium[39] and arsenic[38] also occurs in accordance with the Freundlich isotherm. In all cases, dentin adsorbs more of the material than enamel, owing to the greater bulk and the resulting smaller total surface of the apatite crystals in the enamel.

These studies made with powdered tooth material are obviously of theoretical importance only, but studies on whole teeth confirm the fact that fluoride is also taken up by intact enamel.[40] Sev-

31. Maj, G.: Remineralization of the Enamel of the Isolated Tooth. Ricerca sci. 14:261, 1943; Chem. Abs. 39:114, 1945.

32. Osborn, T. W. B.: Further Studies on the in Vitro Decalcification of Teeth. J. D. Res. 20:59, February 1941.

33. Volker, J. F., and Bibby, B. G.: Action of Fluorine in Limiting Caries. Medicine 20: 211, May 1941.

34. Volker, J. F., et al.: Adsorption of Fluorides by Enamel, Dentin, Bone and Hydroxyapatite as Shown by the Radioactive Isotope. J. Biol. Chem. 134:543, July 1940.

35. Manly, M. L., and Levy, S. R.: Adsorption Studies on Enamel, Dentin and Bone. J. Am. Chem. Soc. 61:2588, October 1939.

36. Armstrong, W. D.: Experiments in Vitro on Exchange of Phosphate by Enamel and Dentin. Proc. Soc. Exper. Biol. & Med. 44:28, May 1940.

37. Hodge, H. C., et al.: Adsorption of Phosphates at Forty Degrees by Enamel, Dentin, Bone and Hydroxyapatite as Shown by the Radioactive Isotope. J. Biol. Chem. 138: 451, April 1941.

38. Hodge, H. S., et al.: Nature of the Insoluble Sodium of Bone. The Adsorption of Sodium at Forty Degrees by Bone, Dentin, Enamel and Hydroxyapatite as Shown by the Radioactive Isotope. J. Biol. Chem. 148:321, May 1943.

39. Hodge, H. C.; Gavett, E., and Thomas, I.: Adsorption of Strontium on Enamel, Dentin, Bone and Hydroxyapatite as Shown by the Radioactive Isotope. J. D. Res. 22:200, June 1941.

40. Norvold, R. W.; Inglis, J. H., and Armstrong, W. D.: External Acquisition of Fluorine by Enamel. J. D. Res. 20:232, June 1941.

eral of the numerous studies on phosphorus uptake by teeth[41-43] show that at least some of the radioactive phosphorus enters the tooth from the enamel surface. Souder and Schoonover[44] have suggested a possible mechanism for the adsorption of fluorides that involves one form of remineralization by the saliva. They exposed etched surfaces of dentin to fluoride solutions and found that no detectable change occurred. The surfaces were blotted dry and then treated with a solution of calcium sulfate. A precipitate, probably calcium fluoride, was seen on the surface, soon filling all the depressions caused by the etching. Although intact enamel does not resemble etched dentin, a similar reaction between teeth exposed to fluorides and the calcium of the saliva may occur, and thus, at least in part, explain the increase in fluorine content of teeth which have been exposed to fluorides.

It is thus clear that the normal surface of enamel is capable of taking up material from saliva or from fluids which may bathe it. The effect of this adsorption depends on the possibility of further reactions. If no further reaction occurs between the adsorbed material and the tooth substance, continued washing of the enamel surface by fresh saliva may gradually cause desorption of the material, so that any effect which it might have on the properties of the tooth would be only temporary. If, however, a further chemical reaction can occur between the adsorbed substance and the tooth, permanent modification of the physical, chemical or biologic properties of the tooth can be expected.

It is precisely because fluoride and hydroxyapatite have such a strong tendency to react with one another to form fluorapatite, and because this fluorapatite is so stable and is less soluble in acids than apatite itself, that the presence of fluoride has such a marked effect on the behavior of tooth substance, both as to reduced acid solubility and the related reduction in caries susceptibility. The adsorbed fluoride is no sooner in contact with the hydroxyapatite than it reacts irreversibly to form fluorapatite, and this is not removed from the teeth. The observed increase in fluorine content of exposed teeth[45] is ample evidence of this, even if clinical evidence were not also available to confirm it.

The case of fluoride is extreme, but it points the way to a whole new field of research, with prospects for causing chemical changes in the intact tooth through external application of various reactive substances. Such studies as those reported by Buonocore and Bibby[46] indicate methods that can be applied in this direction.

A further point of interest is the suggestion by Weaver[47] that fluoride may act chiefly either immediately before or immediately after the eruption of the

41. Von Hevesy, G.; Holst, J. J., and Krogh, A.: Investigations on the Exchange of Phosphorus in Teeth Using Radioactive Phosphorus as an Indicator. Kgl. Danske Videnskab. Selskab. Biol. Med. 13: No. 13, 1937; Chem. Abs. 32:2597, 1938.

42. Barnum, C., and Armstrong, W. D.: In Vitro and in Vivo Exchange of Phosphorus by Enamel and Dentin. J. D. Res. 20:232, June 1941; Am. J. Physiol. 135:478, January 1942.

43. Sognnaes, R. F., and Volker, J. F.: Studies on Distribution of Radioactive Phosphorus in the Tooth Enamel of Experimental Animals. Am. J. Physiol. 133:112, May 1941.

44. Souder, W., and Schoonover, I. C.: Experimental Remineralization of Dentin. J.A.D.A. 31:1579, December 1944.

45. Armstrong, W. D., and Brekhus, P. J.: Chemical Composition of Enamel and Dentin. II. Fluorine Content. J. D. Res. 17:27, February 1938.

46. Buonocore, M. G., and Bibby, B. G.: Effects of Various Ions on Enamel Solubility. J. D. Res. 24:103, April 1945.

47. Weaver, R.: Fluorine and Dental Caries: Further Investigations on Tyneside and in Sunderland. Brit. D. J. 77:185, October 6, 1944.

tooth. This suggests other possibilities of the relation of the age of the tooth to changes in it which deserve further study.

It can thus be seen that chemical changes do occur in the teeth with advancing age, either from within the tooth or from its outer surface. It is also evident that research in this field is in its infancy, and that many profitable results, both of a theoretical and of a practical nature, are to be expected as work along these lines is continued.

Summary

Changes in dentin after eruption may occur, chiefly in the form of further calcification of the tubules, as a physiologic process of aging, or in response to an external stimulus. Changes in enamel may occur physiologically, possibly as a result of further keratinization of the organic matrix, or as a result of treatment with external applications of substances which can react with the tooth substance and modify its properties.—*344 Fourteenth Street.*

CASES AND COMMENTS

An Oath for Graduating Dental Students

To the Editor: The Oath of Hippocrates, attributed to that celebrated Greek physician, who lived 460 to 360 B.C., when administered in the ceremony associated with the medical graduation, dramatically calls to the attention of the group the responsibilities which are theirs and solemnly pledges their observance of certain action and attitudes in connection with their calling which can only redound to the benefit of the patient and to the credit of the physician.

It is impossible to find in history any real or mythical version of an oath associated with the profession of dentistry which can be administered to a graduating group. It is to be hoped that a modern oath will be devised or created which will embody in its substance such high qualities of professional conduct and doctor-patient relationship as to be no less binding and solemn in its impressiveness when administered to graduating classes in dentistry than is this ancient Hippocratic Oath.

A suggestion to this effect is being made to the Council on Dental Education, in the hope that the Council may see fit to act favorably upon it and to formulate such an instrument.

However, the fact that this document does not exist today does not in any way release graduating dental students from the responsibilities which are associated with the administration of dental care to those who seek their services. Should they fail at any time to consider the best interests of those who entrust themselves or are entrusted to their care as paramount to every other consideration, they would be unworthy of the degree conferred upon them and would bring discredit upon their school, the university of which it is a component and the profession of which they on that day become a part.—*F. H. Brophy, D.D.S., 200 West Fifty-Ninth Street, New York.*

TESTIMONY OF THE AMERICAN DENTAL ASSOCIATION ON MATERNAL AND CHILD HEALTH BILL (H.R.3922)

Testimony on behalf of the American Dental Association was given at hearings on the Maternal and Child Health Bill (H.R. 3922) by Allen O. Gruebbel, executive secretary of the Council on Dental Health. The hearings were held on June 6 before the Subcommittee on Aid to the Physically Handicapped of the Committee on Labor of the House of Representatives, Augustine B. Kelley, Pennsylvania, chairman.

Dr. Gruebbel: I am Dr. Allen O. Gruebbel, Executive Secretary, Council on Dental Health of the American Dental Association. I am presenting this statement on behalf of the members of the American Dental Association relative to H.R. 3922.

The American Dental Association, whose headquarters are in Chicago, has a membership of 56,000 dentists. This represents more than two-thirds of the 75,000 dentists registered in the United States. The Association is comprised of fifty-eight constituent societies in all of the forty-eight states, each territory and possession, the Army, the Navy, the United States Public Health Service and the Veterans Administration. Within the constituent societies there are 440 organized district dental societies located in all parts of our country. Each of the constituent societies annually selects delegates to attend the sessions of the House of Delegates, which is the policy-making body of the American Dental Association.

During many of its sessions in past years the House of Delegates of the Association has given careful attention to the dental health problem in this country. As a result, a number of broad policies have been adopted by the House of Delegates which the dental profession believes must form the framework for any plan designed to promote dental health. The basic idea behind these policies is that an attack on the dental disease problem must be made through prevention and effective dental care programs for children. It is for this reason that the American Dental Association has a special interest in H.R. 3922.

The proposed Bill (H.R. 3922) is designed apparently to make funds available to the states to provide medical, nursing, dental and hospital services to all mothers and children who elect to participate in the benefits of the program. While the American Dental Association recognizes the need for an expansion of health services for mothers and children, the Association does not believe that the provisions of the bill will permit the establishment of sound methods for promoting dental health. The American Dental Association, therefore, is opposed to the enactment of H.R. 3922 in its present form.

The American Dental Association has adopted four principles as a guide to the establishment of dental health programs. The four principles are:

1. Research: Adequate provisions should be made for research which may lead to the prevention or control of dental disease.

2. Dental Health Education: Dental health education should be included in all basic educational and treatment programs for children and adults.

3. Dental Care: (a) Dental care should be made available to all regardless of income or geographic location. (b) Programs developed for dental care should be based on the prevention and control of dental diseases. All available resources should first be used to provide adequate dental treatment for children and to eliminate pain and infection for adults. (c) Dental health is the responsibility of the individual, the family and the community, in that order. When this responsibility, however, is not assumed by the community, it should be assumed by the state and then by the federal government. The community in all cases shall determine the methods for providing service in its area.

4. In all conferences that may lead to the formation of a plan for dental research, dental health education and dental care, there should be participation by authorized representatives of the American Dental Association.

For a considerable number of years the American Dental Association has taken an active part in planning for an expansion of community dental health services that are based on the above four principles. Some

progress has been made in most of the states in which dental divisions in state health departments have been established through the efforts of the component societies. However, state and community dental health programs have not been as productive as they might be owing chiefly to a lack of funds and other facilities to carry out experiments and demonstrations in methods for preventing dental disease, in educational technics, in methods of payment for dental services and in the employment of ancillary personnel. The American Dental Association does not believe that the dental provisions of H. R. 3922 will assure the establishment of sound and effective community dental health programs for the following reasons:

1. H.R. 3922 does not contain specific provisions for dental research, dental health education and dental care in accordance with the four principles outlined above. Therefore, the bill will not permit the establishment and maintenance of a *comprehensive* dental health plan.

2. H.R. 3922 does not specifically earmark funds for dental programs; nor does it even suggest the proportion of funds that may be used for dental health. Experience in the past has shown that public health agencies are reluctant to budget a fair proportion of available funds for dental health programs.

The amount of money budgeted for dental health plans at the state level in the United States for the fiscal year 1941 was only 0.6 per cent of the $109,000,000 budgeted from all sources for cooperative health work. The extent of the dental disease problem is far out of proportion to the small percentage of funds now allocated for dental purposes. Dentists and dental health officers who have worked in the public health field for many years are convinced that this problem will never be solved until funds are specifically allotted for dental health programs. H.R. 3922 does not give that assurance.

3. H.R 3922 does not provide specifically for a national dental advisory committee to assist the Children's Bureau in the adoption of administrative policies and regulations; nor does the bill provide specifically for state dental advisory committees which would be consulted relative to the adoption of state plans.

Section 103, paragraph 10, of the bill (page 7, lines 6-13) states that a state plan for maternal and child health services must "provide for a general advisory council . . . composed of members of the professions . . . and for technical advisory committees . . . composed of medical and other professional groups concerned with the administration or operation of the State plan."

Section 105, paragraph 1 (page 10, lines 9-14), states that "the Chief of the Children's Bureau shall formulate general policies for the administration of this title after consultation with (1) a conference of State health officers and (2) an advisory committee composed of professional and public members and, as necessary, technical advisory committees, which he shall appoint."

While it might be assumed that dental advisory committees could be classified as "technical advisory committees," the wording of the bill is unnecessarily vague. The appointment of dental advisory committees would be left to the discretion of the state health agency and the Chief of the Children's Bureau. Such indefinite policies are not satisfactory to the dental profession.

4. H.R. 3922 is vague with respect to the provision of dental services. It proposed to make dental care available to all mothers and children. However, all references to dentistry are omitted in those sections dealing with the provision of health services. For example, page 6, lines 9-13, provides that state plans must make provisions for "payments to individual physicians for care furnished under this title on a per capita, salary, per case, or per session basis, or in the case of consultations or emergency visits on a fee-for-service basis."

H.R. 3922 contains no information as to how dentists will be paid for dental services.

No mention is made of dental provisions in any of the other sections dealing with public health and medical care, although the first paragraph states that it is the purpose of the bill to provide medical, nursing, *dental,* hospital and related services.

The Proposals of the American Dental Association

As has been stated, the American Dental Association is opposed to the enactment of H.R. 3922 in its present form. Extensive revisions would need to be made to meet the Association's requirements for a satisfactory dental health program for mothers and chil-

dren. The American Dental Association believes a better plan would be to secure the passage of S. 190 and S. 1099 which have been introduced in the Senate. These bills provide federal grants-in-aid to the states for intensified dental research and for experimental programs in all phases of dental health education and dental care.

In contrast to the proposals contained in all other health bills now before Congress, S. 190 and S. 1099 would permit a realistic and comprehensive attack on the dental disease problem.

The enactment of S. 190 and S. 1099 would provide the means for a systematic development of dental health programs designed:

1. To prevent dental diseases by discovering more effective preventive methods.

2. To control dental diseases by the expansion of community dental programs. These programs should be maintenance programs centered on the control of the annual increment of new dental defects in children.

3. To educate the public relative to the importance of dental health and the methods by which dental health can be achieved.

We hope that the House of Representatives will give favorable consideration to the two bills sponsored by the American Dental Association when they are brought before the House for consideration.

Mr. Kelley: Suppose a specific amount were set forth for dental care.

Dr. Gruebbel: That would meet one of the objections of our Association.

Mr. Kelley: You could not endorse the whole bill for that reason?

Dr. Gruebbel: No. There are other objections. We believe provisions should be made for a dental advisory committee.

Mr. Kelley: Mr. Adams, have you any questions?

Mr. Adams: Yes.

You would not object to medical care being furnished mothers and children, would you?

Dr. Gruebbel: No. The proposal of our Association makes such a provision on a community basis, depending upon need. We feel that funds should be earmarked for dental health programs, because it is our experience that appropriations made for health purposes are usually used for health services other than dental services.

Mr. Geelan: The Association's suggestions concerning the adoption, formulation and working out of a plan are not clear in my mind. What do you mean when you say a "community basis"?

Dr. Gruebbel: We believe that it is the fundamental right of the community to choose and develop its own plans for a health program.

Mr. Geelan: You are sure of that?

Dr. Gruebbel: Yes.

Mr. Geelan: That, of course, is denying the sovereign right of the state.

Dr. Gruebbel: Perhaps I did not make myself clear. I mean the state rather than the federal government should have the right of determination.

Mr. Geelan: Various testimony we have heard on a number of subjects regarding health and education is to the effect that if we are to depend upon the states to render the services necessary along those lines, some states will never—the population of some states will not reach the stage where they can afford to do it. That is especially true in the realm of education.

Dr. Gruebbel: We believe that grants-in-aid should be made to those states unable to adequately finance health programs.

Mr. Geelan: You want the states to get federal money but do not want the federal government to have anything to say in the spending of that money; is that the idea?

Dr. Gruebbel: Within certain broad limits —yes. The people know best on the state level what they want and need.

Mr. Geelan: You think it is perfectly all right for the federal government to finance a health program and then let the states run such program.

Dr. Gruebbel: Under the grants-in-aid system the states supply part of the funds. The federal government only assists if aid is needed. Therefore, the states should control and administer their own health program.

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PURE FOOD AND DRUG ACT, 1906-1946

Just forty years ago a piece of legislation, which almost everyone would now classify as indispensable protection for the consumer, was enacted by Congress after a stormy fight lasting more than a decade. Its final passage involved the strenuous support of a strenuous President, Theodore Roosevelt; the publication of a novel that shocked the nation with its realism; unprecedented lobbying and the inevitable upsurge of public opinion. The center of this controversy was the Pure Food and Drug Bill introduced in 1902, but not passed until 1906.

The flight from the farms before the turn of the century created new problems in food handling since urban dwellers only infrequently had access to a food supply that did not involve shipping. Refrigeration was limited to that afforded by cellars, springhouses and primitive iceboxes and refrigerator cars. In order to get a product to market, the use of chemical preservatives and adulterants became such common practice that it led eventually to a national scandal. President Theodore Roosevelt, in 1905, asked Congress for regulatory legislation, but not until Upton Sinclair published his vivid exposé of the meat-packing industry, "The Jungle," did public opinion become irresistible. The bill was finally enacted on June 30, 1906, and culminated the lifelong fight of Harvey W. Wiley, chief chemist of the Department of Agriculture, who was one of the original proponents of such legislation.

In 1940 the Food and Drug Administration was transferred from the Department of Agriculture to the Federal Security Agency. The Pure Food and Drug Act of 1906 was later supplanted by legislation designed to meet new needs. At the present time, the Administration enforces the Food, Drug and Cosmetic Act, the Tea Act, the Caustic Poison Act and two acts protecting the purity of milk. The activities of the Administration are now directed mainly toward "promoting purity, standard potency, and truthful and informative labeling of the essential commodities covered by these five acts."

The passage of the Pure Food and Drug Act forty years ago was an important milestone. It marked the road of regulation and protection which led to the saving

of untold billions of the consumers' dollars and to a lessening of an unconscionable exploitation of human ills. The work of this official agency, which is done in a very broad field, has been reinforced by that of certain private agencies which are concerned with standards in more specialized areas. Among these are the Council on Dental Therapeutics of the American Dental Association and the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition of the American Medical Association. These agencies have rendered a service that can be measured only in terms of the benefits which their efforts have enabled the professions to provide for the public.

The fight for pure food and pure drugs is a continuing one. As our technology advances and national habits change, new problems arise. The universal use of cosmetics, the development of radio as an advertising medium, the national craze for using vitamins indiscriminately and the popularity of self-medication are cases in point. In a recent address,[1] Thomas Parran, Surgeon General of the U. S. Public Health Service, pointed to the problems created by radio:

> In our efforts to protect the public in the manufacture and sale of food and drugs, we cannot help feeling a deep concern over some of the advertising technics promoting the sale of products to the general population. In this field standards self-imposed by the industries are urgently needed.
>
> I am referring particularly to the widespread use of extravagant claims and promises held out or implied in drug advertising on the radio. At almost any hour of the day, listeners may hear announcements offering relief for a wide variety of human ills. In the American pattern any product which is to be sold widely must be advertised. Radio is an important medium. Often, however, the enthusiasm of the sponsor gets out of bounds.

The Surgeon General cited the action of the newspaper industry in using "aggressive action" to improve the advertising of drugs in its columns. He urged the radio industry to take similar action. Certain types of dental products that are advertised to the public are not among the least of such offenders. The lesson of the past forty years should be clear: consistent abuse and evasion of certain well-defined standards result in injury to the public and inevitably in governmental intervention. There is no substitute for such standards. It is a part of wisdom for interested groups to develop these for themselves as important avenues for increasing their public service and acceptance.

LEGISLATION FOR THE ARMY DENTAL CORPS

A bill (H. R. 6750) to "provide more efficient dental care for the personnel of the United States Army" has been introduced in the House of Representatives by John J. Sparkman, Alabama, at the request of the Committee on Legislation of the American Dental Association. This bill is designed to secure administrative parity for the Army Dental Corps so that its important work will not continue to be hampered by the inept regulations, casual administration and glaring inequalities that provided such serious obstacles in the recent war.

The events leading to the introduction of this legislation are revealing. They are described in a review of correspondence between officials of the American Dental Association and the Army. This review, prepared by Carl O. Flagstad, chairman,

1. Address delivered at a program sponsored by the New York Bar Association to commemorate the fortieth anniversary of the passage of the original Pure Food and Drug Act.

Committee on Legislation, appears elsewhere in this issue.[1] It tells a story of unfulfilled promises, unwillingness to support corrective legislation, hampering reaction and open ineffectiveness. It is required reading for every dentist and every dental officer who is interested in altering conditions that have already had a seriously detrimental effect on morale and practice in the Army Dental Corps.

A similar bill was introduced by the American Dental Association on behalf of the Naval Dental Corps. This bill was passed with the courageous support of high-ranking naval dental officers. Such support was denied similar legislation by highly-placed army dental officers during the war. The war is over now. Returning dental officers, almost without exception, confirm and enlarge upon the charges of inadequacy and inequality that are familiar to every dentist who served in the armed forces. Most of these officers unhesitatingly will support corrective legislation. Every resource of the American Dental Association will be used to prosecute this legislation effectively. The support of officials of the Army Dental Corps is essential to the rapid enactment of this measure. It is hoped that they will offer the same type of cordial cooperation that characterized the hearings on the Naval Dental Corps bill.

DENTAL RESEARCH BILL (S.190) PASSES SENATE

The Dental Research Bill (S. 190), sponsored by the American Dental Association, was passed by the Senate on June 14 after a favorable report[2] on the measure had been made by the Senate Committee on Education and Labor. There is considerable reason to believe that favorable action by the House of Representatives will follow before the end of the session. The Dental Health Education and Dental Care Bill (S. 1099), which translates the remainder of the American Dental Association's program for improved national dental health into legislation, has not yet been reported by the Senate Committee on Education and Labor which conducted hearings on the bill. Action on this bill will depend in large degree on the priority given legislation in the closing days of the session.

The Senate report[2] on S. 190 points out that the "subcommittee heard testimony by the Surgeon General of the United States Public Health Service, officers of the American Dental Association, many outstanding authorities in the dental health field, the National Congress of Parents and Teachers and representatives of many consumer and labor organizations. Moreover, statements were solicited and received from a large number of individuals and groups with special knowledge or interest in the subject. Sentiment was virtually unanimous in favor of the bill." The report also reveals that "there is no reliable estimate of the amount of funds devoted to dental research, but in comparison to the magnitude of the problem the amounts spent are negligible. The largest expenditure for this purpose is made by the National Institute of Health of the United States Public Health Service, and this is only about $50,000 a year."

The need for this legislation is obvious and its wide acceptance by all interested groups should commend it to the House of Representatives for passage before adjournment.

1. See page 1030.
2. See page 1027 for text of report.

NEWS OF DENTISTRY

Senate Drops Fight To Raise Price of Silver to $1.29 in 1948

Acting to win an immediate increase in the price of domestic silver, the Senate last month dropped its fight for a raise to $1.29 an ounce beginning in 1948.

In a compromise move, the Upper Chamber on July 9 approved by voice vote and returned to the House a proposal for an immediate increase from the present 71.11 cents to 90.3.

The action came a day after the House, standing firm on its 71.11-cent proposal, rejected and returned to the Senate its original plan for an immediate raise to 90.3 cents to be followed by a further increase to $1.29 in two years.

Earlier, the Bank of Mexico announced that it would "free" an estimated 250,000,000 ounces of hoarded coins and other privately-owned silver for export if the price reaches $1.05.

ARMY AND NAVY

Stepped-Up Dental Discharge A "Bright Prospect": General Kirk

Prospects for stepped-up discharge of dental corps officers with over two years of service were termed "bright" by Maj. Gen. Norman T. Kirk, Surgeon General of the Army, in a recent announcement on progress of the army dental draft.

Applications for commissions in the Dental Corps averaged between twenty-five and thirty daily at the end of June, with 234 dentists under processing for commissions as first lieutenants in the corps during the week that ended June 22, General Kirk disclosed.

Under Selective Service, eligible men, including those who received partial dental training under the Army Specialized Training Program and subsequently were released to continue professional training, will be drafted as privates unless they apply for commissions in the Dental Corps.

Terming results of the draft action "encouraging," so far, General Kirk reported that approximately 500 ASTP-trained men had volunteered, but that, as yet, all of their papers had not been processed.

In addition, a previously announced agreement with the Navy was expected to provide approximately 800 naval dental officers of whom some 300 were to be transferred to the Army this month, to permit release of men with two years of service.

"The Dental Corps discharge program is geared to release all dentists with 30 months of service by September 1, and the next objective of the entire program is to release all with two years' service as soon as they can be spared," General Kirk said. "It is hoped that Selective Service action, acquisition of dentists from the Navy, and integration of dentists into the regular Army, will provide the means of reaching that goal even sooner than was originally anticipated."

Navy To Hold Examinations for Dental Corps Candidates August 19

Entrance examinations for prospective navy dental corps officers will be conducted August 19 at the U. S. Naval Training Centers at San Diego, San Francisco and Great Lakes, Ill., and the U. S. Naval Dental School, National Naval Center, Bethesda, Md., Cmdr. Gerald G. Gross, Bureau of Medicine and Surgery, has announced.

Newly-commissioned officers will be ordered to the Naval Dental School, one of the commands of the Bethesda naval center, for six months of indoctrinal and

postgraduate dental training. Upon completion of the course, the student officer usually is assigned to a naval hospital for six months' additional training.

Dental officers subsequently are assigned to general duty. They may be ordered to any of a number of different ships, including carriers, battleships, aircraft carriers, tenders, repair and hospital ships and naval transports, or to duty outside the continental limits of the United States, with the Marines, to base, fleet or naval hospitals, or to other assignments.

Thereafter, tours of duty usually are rotated between sea and shore, the announcement said. Duty outside the continental limits, it was pointed out, counts in lieu of sea duty, and the officer's family usually may accompany him at government expense.

Navy dental officers are required to make their services available to the greatest number of men dependent upon them for treatment and to maintain high professional standards, it was pointed out. Other duties include instructing naval personnel in oral hygiene by lecture and demonstration.

In addition, dental officers may be assigned to battle dressing stations aboard ship, where they are called upon to organize teams of hospital corpsmen and other enlisted ratings to care for casualties. At sea, they usually are required to participate in certain battle drills. They also are assigned collateral duties periodically, including those of athletic officer, member of courts and boards, band officer, etc.

Practice in the corps, once confined to operative and minor oral surgical procedures, now includes operative, oral surgical and prosthetic procedures, as well as maxillofacial surgery and plastic prosthesis.

Under navy law, each dental officer is furnished a dental technologist, and schools are maintained for training of enlisted personnel in the care of the operating room and equipment, maintenance of supplies, keeping of records, assisting at the chair, accomplishment of routine prophylaxis and prosthetic laboratory procedures.

Income of the naval dental officer consists of base pay—ranging from $2,100 annually for a lieutenant, junior grade, to a maximum of $8,000 for a rear admiral—plus allowances for amount of service and number of dependents. In addition, there are automatic benefits, including income tax exemptions, allowances for medical care, non-taxable allowances, gratuities to widows and other considerations.

At the discretion of the President, a dental officer is eligible for voluntary retirement on 50 per cent of his base pay after twenty years' service, and on 75 per cent after thirty years, with retirement compulsory at 62. Retirement because of age entitles an officer to an annual income amounting to 75 per cent of his pay for the remainder of his life. Officers retired because of disability receive 75 per cent of pay, minus allowances, at time of retirement.

Candidates must be male citizens of the United States, over 21 and under 32 years of age at time of appointment. They must be graduates of accredited dental schools and must successfully pass mental, moral, physical and professional examinations.

Applications should be addressed to the Chief of the Bureau of Medicine and Surgery, Navy Department, Washington 25. They should include (1) letters or certificates from two or more personal character references; (2) satisfactory evidence of citizenship and date of birth; (3) certificate of preliminary education; (4) certificate of dental education; and (5) certificate attesting to hospital service or special educational or professional advantages, if the applicant has received such training.

Wins Army Commendation Ribbon For Research in Aviation Dentistry

For "outstanding service" in coordinating research on dental problems peculiar to the air forces, Maj. Kermit G. Knudtzon, Army Dental Corps, has been awarded the Army Commendation Ribbon.

A citation signed by Maj. Gen. E. E. Partridge, Assistant Chief of Air Staff, U. S. Army Air Forces, reads in part:

You have been largely responsible for leadership and coordination of research into a comparatively new field: dental problems peculiar to the Air Forces. Through the Chief, Dental Unit, Office of the Air Surgeon, you initiated the project by compiling a record of experiences and observations of some 185 Army Air Forces dental surgeons.

These surgeons reported on experiences with such problems as toothaches at high altitudes, oral hygiene of flyers, overclosure of the mandible as a factor in vertigo, effect of oxygen inhalation on teeth and dental program of Aviation Dentistry research involving projects in civilian institutions, as well as Army Air Forces dental officers.

Your enthusiasm, energy and initiative contributed greatly to the advancement of Aviation Dentistry.

Major Knudtzon received the award for services from July 1943 to December 1945, during which time he was Dental Dispensary Officer in the Medical Safety Section, Flying Safety Branch, Flight Operations Division.

A.D.A. AFFAIRS

Committee Seeks Candidates for Post of A.D.A. General Secretary

The special committee of the Board of Trustees of the American Dental Association appointed recently to receive applications for the position of General Secretary has issued the following statement through its chairman, LeRoy M. Ennis:

The constitution of the American Dental Association requires that the Board of Trustees nominate to the House of Delegates an applicant for the position of Secretary of the American Dental Association. As the General Secretary of the American Dental Association will not be a candidate for the office at his own request, the Board of Trustees has appointed the undersigned committee to receive applications and suggestions. The qualifications, experience and name of a candidate should be sent in quadruplicate to the chairman of the committee, LeRoy M. Ennis, 4001 Spruce St., Philadelphia 4.

Further information regarding the position of General Secretary may be obtained from any member of the committee: Howard E. Summers, First National Bank Bldg., Huntington, W. Va.; Henry Hicks, 5 Glen Court, Greenwich, Conn.; Russell A. Sand, 807 North Broadway, Fargo, N. Dak.; LeRoy M. Ennis, 4001 Spruce St., Philadelphia 4.

A.D.A. Membership Certificates To Be Issued by State Societies

In an effort to speed issuance of annual membership certificates, the American Dental Association will mail 1947 certificates to members through local societies, rather than through the Central Office.

The change will be made to eliminate delays necessary in forwarding dues to the Central Office from the states in which they are paid, Paul W. Zillmann, chairman of the Membership Committee, explained.

Certificates will be mailed by local secretaries in duplex envelopes, each of which contains a special pocket for the membership card, to enable members to receive the card and certificate simultaneously, Dr. Zillmann said.

McAllister, Columbus Hotels Headquarters for Miami Meeting

The McAllister and Columbus Hotels have been named co-headquarters for the House of Delegates meeting to be held in Miami October 14, 15 and 16,

Harry B. Pinney, General Secretary, has announced. These hotels are adjacent and are connected by an arcade.

The Everglades Hotel, a short two blocks from the headquarters hotels, has also reserved a substantial number of rooms for convention delegates. All three hotels are on Biscayne Blvd. and face the park and bay. It is suggested that delegates and others planning to attend the meeting send their requests for reservations direct to the hotel of their choice.

McAllister, 10 Biscayne Blvd.: singles, from $4; doubles and twins, from $7.

Columbus, 50 Biscayne Blvd.: singles, from $4; doubles and twins, from $8.

Everglades, 236 Biscayne Blvd.: singles, from $3; doubles and twins, from $5.

HEALTH GROUPS

Public Health Association To Hold Convention November 11

The American Public Health Association will hold its seventy-fourth annual meeting November 11 in Cleveland. The meeting, the group's first full-scale convention since 1942, will be attended by about 4,000 persons, spokesmen for the organization said. Harold J. Knapp, Cleveland health commissioner, is chairman of the local committee.

A.M.A. Condemns Wagner Bill; Names Olin West President-Elect

Resolutions condemning the Wagner-Murray-Dingell national health bill and supporting the Taft-Smith-Ball plan for a state-administered health program were passed by the American Medical Association at its first postwar meeting July 1-5 in San Francisco.

Olin R. West, Chicago, who resigned in April as secretary and general manager after twenty-four years in that capacity, was named president-elect. Harry H. Shoulders, for seven years speaker of the House of Delegates, became president.

Edward L. Bortz, Philadelphia, was elected vice-president, and the following officers were re-elected: George P. Lull, Chicago, secretary; J. J. Moore, Chicago, treasurer; R. W. Fouts, Omaha, speaker of the House of Delegates; and F. F. Borzell, Philadelphia, vice speaker.

WORLD DENTISTRY

Isaac Schour and Maury Massler Report on Dentistry in Italy

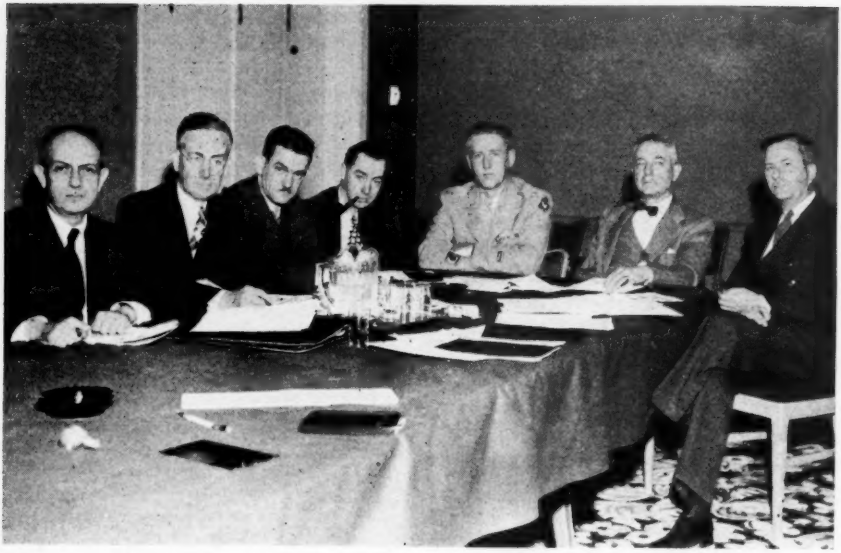
"Dentistry in Italy has suffered a severe setback by the destruction of professional educational facilities, by the loss of contact with dental progress in other countries and by the total lack of dental supplies," report Isaac Schour and Maury Massler, members of the Italian Medical Nutrition Mission group which recently studied the effects of malnutrition in Italy.

Effects of malnutrition upon the index of caries and upon periodontal disease were specifically studied. Full-mouth intra-oral photographs in full color were taken of every case studied before and after therapy. The data obtained are very extensive, and a period of many months will be required to analyze them.

The greatest needs of dentists in Italy are recent books and periodicals and postgraduate instruction in all phases of dentistry by American dentists.

British Dental Association Elects First Woman President

Mrs. Lillian Lindsay of London, Britain's first woman dentist, last month became the first woman president of the British Dental Association in Edinburgh, Scotland. Mrs. Lindsay came to Edinburgh in 1895 to qualify as a dentist because the College of Surgeons in London barred women.



Executive Committee of American Academy of Oral Pathology

Left to right: Lester A. Cahn, president-elect; J. R. Blayney, second vice-president; Donald Kerr, first vice-president; H. B. G. Robinson, editor; Lt. Col. Joseph L. Bernier, secretary-treasurer; Kurt H. Thoma, president; and Henry Swanson, chairman, Museum Committee.

Announce Formation of Academy of Oral Pathology

Formation of the American Academy of Oral Pathology through the efforts of the Registry of Dental and Oral Pathology of the American Dental Association, Army Institute of Pathology, Washington, was announced last month.

Any dentist in good standing in the American Dental Association may request membership, provided he has had some advanced training in clinical, morphologic, or experimental oral pathology and is endorsed by two Fellows of the Academy, Lt. Col. Joseph L. Bernier, temporary secretary-treasurer, said in making the announcement.

Other temporary officers, who comprise the executive committee, are Kurt H. Thoma, president; Lester A. Cahn, president-elect; Donald Kerr, first vice-president; J. R. Blayney, second vice-president; and H. B. G. Robinson, editor. They were elected June 7.

Elevation to fellowship in the academy is by examination. Candidates are required, after attaining membership, to submit evidence of training above the undergraduate level, such as postgraduate study, teaching, research activities or active association with a department of pathology of an acceptable institution.

After scrutiny by the fellowship and executive committees, candidates will be certified for examination, and, if successful, will be elected to fellowship and awarded certificates.

The first annual meeting of the academy will be held in Chicago, preceding the mid-winter meeting of the Chicago Dental Society next February.

Further information regarding mem-

bership may be obtained by addressing Colonel Bernier at the Army Institute of Pathology, Washington 25.

DENTAL SCHOOLS

$1,000,000 Structure To House Temple School of Dentistry

The School of Dentistry, Temple University, will be housed in a $1,000,000 building at Broad St. and Allegheny Ave. in the heart of Philadelphia by September 1947, at the latest, Gerald Timmons, dean, announced last month.

The building, erected about fifteen years ago, was purchased recently from the federal government. It is now being renovated and will be installed with new dental equipment, now being purchased by the university, Dr. Timmons said.

A four-story structure, it contains 200,000 square feet of space. Preliminary plans call for housing the various offices, clinics, laboratories, classrooms and other units as follows:

Directly inside the main entrance, which is on Broad St., will be a lounge and reception room for visitors. Administrative offices for the dean and his staff will be located to the right of the reception room, with a dental museum directly behind the office.

An 800-seat auditorium with sloping floor will occupy the center of the first floor. It will be equipped with a stage and projection machines for audio-visual education and will be used for student convocations and other functions.

To the right of the auditorium will be a 40,000-volume library, complete with stack room and desks accommodating up to 200 students. Adjoining the library will be a book bindery, which will serve the entire university.

Clinical facilities will be housed on the second floor, with the Broad St. frontage devoted to the main adult clinic for oral hygiene. The patients' entrance will be on the south side of the building, and their reception room on the second floor. The floor also will contain the diagnostic center, which will have a direct connection with the x-ray department.

A twenty-four-chair children's clinic also will be on the south side of the building, with the orthodontic clinic situated next to it. On the opposite side will be facilities of the Oral Hygiene School, together with a thirty-five-chair clinic, laboratories, lecture rooms and administrative offices. In addition, there will be a practical clinical laboratory to serve the main adult clinic.

The third floor area will include laboratories for teaching crown and bridge prosthetics, operative dentistry and prosthetic dentistry at the preclinic level. There will be a special casting room and a special laboratory for ceramics in connection with the crown and bridge laboratory.

Four lecture rooms will be located on the north side of the third floor, each with a 125-student capacity and furnished with projection machines for audio-visual education. They will be used jointly by dental and pharmacy students. In addition, there will be a series of seminar rooms to be used for group teaching and for refresher and graduate courses.

On the south side of the structure will be laboratories housing the departments of physiology, histology and pathology, bacteriology, physiologic chemistry and pharmacology. These laboratories will be furnished with the necessary auxiliary and professional rooms for research.

The fourth floor will contain a cafeteria seating 320 persons, an adjoining faculty dining room and a small dining room for the dean.

The spaciousness of the building allows for the inclusion of other units without crowding any of the departments for which plans already have been drawn, Dr. Timmons said.

New Home of Temple University, School of Dentistry

Sketch of four-story structure at Broad St. and Allegheny Ave., Philadelphia, recently purchased from the federal government by Temple University to house its School of Dentistry.

Study Oral Penicillin and Oxidized Gauze at Columbia

Uses of oral penicillin and oxidized gauze are under study at the School of Dental and Oral Surgery, Columbia University, the school announced recently.

The school's current research in oral penicillin involves administration of the drug in cases of Vincent's infection. Results of the study have been encouraging, university spokesmen said, and the research is being expanded to include oral penicillin therapy in many and varied cases of mouth infection. The study is under the supervision of D. E. Ziskin.

The oral surgery division, meanwhile, is conducting extensive research on the use of oxidized gauze to control hemorrhage following extractions in known bleeders. Samuel Birenbach is supervising the study.

University of Illinois To Open 12-Week Dental Course September 9

The College of Dentistry, University of Illinois, will offer a twelve-week postgraduate refresher course in dentistry at its Chicago campus beginning September 9.

The course is the second in a series financed in part by the W. K. Kellogg Foundation and intended for returning veteran dental officers.

Isaac Schour, who organized the new postgraduate work, is in charge of the studies in his new capacity as associate dean of the College of Dentistry.

Western Reserve University Promotes Four Dentistry Teachers

Four instructors at the School of Dentistry, Western Reserve University, have been promoted to the rank of assistant

professor, Winfred G. Leutner, president, announced last month.

They are: Philip Burwasser, dentistry for children; A. H. Kniesner, pathology and periodontia; L. F. Masin, operative dentistry; and W. T. Zaylor, basic dental technology.

College of Physicians and Surgeons Offers Course in Children's Dentistry

The School of Dentistry of the College of Physicians and Surgeons is offering a postgraduate refresher course in children's dentistry September 30 to October 5, in San Francisco.

Buffalo U. Dentistry School Plans October Alumni Meeting

The School of Dentistry, University of Buffalo, will hold its forty-fourth annual meeting October 8-10 at the Hotel Statler in Buffalo, Edgar L. Ruffing, chairman of press and publications, announced last month.

DENTAL RESEARCH

Study of Procaine Dermatitis Among Dentists Under Way in Canada

The Department of Dental Surgery and Anesthesia of the Faculty of Dentistry of the University of Toronto is conducting a survey to determine the number of dentists suffering from procaine dermatitis.

Dentists afflicted with this condition who wish to aid in the study can cooperate by sending the following information to J. H. Johnston, 230 College St., Toronto, Ontario, Canada: date of onset, number of years in practice prior to onset and any other pertinent information.

Fisher Wins Archeology Award For Study of Prehistoric Indians

Alton K. Fisher, assistant professor of pathology in the School of Dentistry, Loyola University, New Orleans, has been awarded the Increase A. Lapham medal of the Wisconsin Archeological Society for his work while on the staff of the department of anthropology of the Milwaukee Public Museum.

DENTAL SOCIETIES

New Jersey Dentist Heads Dental and Medical Groups

William A. Giblin, Montclair, N. J., president of the Essex County Dental Society, has been elected president of the Associated Physicians of Montclair and Vicinity, the first person ever to serve in this dual capacity. Only one other dentist ever has headed the Associated Physicians.

Announce Formation of New Brazilian Orthodontic Society

Formation of the Brazilian Orthodontic Society, with headquarters at Rio de Janeiro, has been announced.

Officers are J. Cavalcanti, president; Kant Rothier, vice-president; and V. Moojen de Oliveira, secretary. The group is located at Rua Manuel de Carvalho, 16-9°.

Pacific Coast Orthodontists Plan San Francisco Meeting

The Pacific Coast Society of Orthodontists will hold its next general meeting in San Francisco February 20-22, 1947.

GENERAL NEWS

A.D.A. Establishes Fellowship At Army Pathology Institute

A fellowship in dental and oral pathology has been established by the American Dental Association in connection with the American Registry of Pathology at the Army Institute of Pathology, Army Medical Museum, Washington.

The fellowship is designed to afford advanced training in dental and oral pathology to graduates of dental schools who wish to equip themselves for a career in a teaching or research institution.

All graduates of recognized dental schools are eligible, although preference will be given to applicants with previous training in general pathology. Appointments will be made for a one-year term and are subject to renewal. The stipend is $2,000 annually.

Applications should be made by letter to the Secretary of the Registry of Dental and Oral Pathology, Army Institute of Pathology, Washington 25.

Form National Society For Medical Research

The National Society for Medical Research, a clearing-house for information on medical studies and discoveries, was organized last month under the sponsorship of the Association of American Medical Colleges with the cooperation of 101 national scientific organizations.

Anesthesia Society To Hold Fall Meeting October 28

The American Society for the Advancement of General Anesthesia in Dentistry will hold its fall meeting October 28 at the Hotel New Yorker, New York, M. Hillel Feldman, executive secretary, has announced.

ESSAY CONTESTS

Chicago Dental Society Announces Essay Contest

To encourage continued scientific research in all phases of dentistry, the Chicago Dental Society again has announced a cash prize offer of $500 to the author of the most meritorious essay reporting an original investigation and containing new and significant material of value to dentistry.

Winner of the award will be invited to present his essay at the eighty-second annual mid-winter meeting of the society in Chicago, February 10-13, 1947, at the Stevens Hotel. All expenses will be paid and will be in addition to the cash prize, society spokesmen pointed out.

Application forms and contest rules can be obtained by writing to the Chicago Dental Society, 30 North Michigan Ave., Chicago 2. All applications must be filed by October 1.

Set September 1 Deadline For Lord-Chaim Contest Entries

The First District Dental Society of New York, sponsor of the annual Lord-Chaim prize for the year's best original dental essay, has announced that entries in the 1946 contest must be submitted before September 1 to the society at the Hotel Pennsylvania, New York 1.

The $500 award is made annually for the best original paper, not previously published or read, dealing with research in the fundamental sciences or with any practical or clinical phase of dentistry. Further information can be obtained by addressing E. M. Davies, executive secretary.

REPORTS OF COUNCILS AND COMMITTEES

COMMITTEE ON LEGISLATION

DENTAL RESEARCH BILL (S.190) PASSES SENATE ON JUNE 14 AFTER FAVORABLE COMMITTEE REPORT

The dental research bill (S. 190) sponsored by the American Dental Association was passed by the Senate on June 14 after a favorable report had been issued by the Senate Committee on Education and Labor, James E. Murray, Montana, chairman. The text follows:

The Committee on Education and Labor, to whom was referred the bill (S. 190) to provide for, foster and aid in coordinating research relating to dental diseases and conditions, to establish the National Institute of Dental Research, and for other purposes, having held hearings and given consideration thereto, report the same (with an amendment) and recommend that the bill as amended do pass.

Hearings were held on the bill on June 26, 27 and 28. All individuals and organizations who wished to be heard on the proposal were given an opportunity to testify. The subcommittee heard testimony by the Surgeon General of the United States Public Health Service, officers of the American Dental Association, many outstanding authorities in the dental-health field, the National Congress of Parents and Teachers, and representatives of many consumer and labor organizations. Moreover, statements were solicited and received from a large number of individuals and groups with special knowledge or interest in the subject. Sentiment was virtually unanimous in favor of the bill.

Prevalence and Consequences of Dental Defects

Dental diseases are among the most prevalent of human ailments. Almost everyone is afflicted with them. Dental caries, or decay, begins almost as soon as the child's first teeth erupt. At the age of 6, more than nine out of ten children have one or more decayed teeth. At this age caries usually begins to attack the permanent teeth, and proceeds, on the average, at the rate of about one decaying tooth every sixteen months. By the time a boy or girl is 18, nine teeth, on the average, have become decayed, and several teeth have been extracted.

The continuing tooth loss disturbs the arrangement of the remaining teeth and predisposes to pyorrhea, a disease of the gum tissues which takes a heavy toll of dental disability in later life.

The best evidence available suggests that not more than 25 per cent of the people receive anything like adequate or regular dental care. About 75 per cent receive very limited care—most of which is for emergency conditions—or no care at all.

It is fitting to give careful attention to the results of any disease or condition which affects so many individuals throughout the course of their lives. The effects of dental disease and defects tend to be obscured because they are seldom so dramatic as those of other forms of illness. In the aggregate, however, the ravages of dental disease and disability are probably as substantial as those of any other ailment in the whole catalog of human ills.

Pain is only one of the sequels of dental neglect. Tooth loss, which inevitably follows failure to repair diseased teeth, results in oral handicaps, including inability to chew properly and speak correctly. The effect of tooth loss on physical appearance, with consequent mental anguish and personality disturbance, should not be overlooked. Most important, perhaps, is the intimate relationship between dental health and general physical well-being. Dental

disease frequently causes or aggravates other bodily ailments, including arthritis, neuritis, neuralgia, valvular heart disease and afflictions of the kidneys and gastro-intestinal tract.

Poor dental health levies a huge toll upon the national economy as well as upon the individual, and on the basis of such information as is available now, even though this be incomplete, it is readily apparent that the toll must be considerable.

Poor dental health also was responsible for the rejection of 188,000 men, out of 2,000,000 registrants examined, in the early days of the Selective Service System. Dental defects accounted for more than one-fifth of all rejections. Yet in the early days of the System the dental requirements of the armed forces were by no means high. To be accepted a man needed to have only three pairs of matching front teeth and three pairs of matching chewing teeth, in short, twelve teeth, as against the thirty-two teeth nature usually provides a person.

When it became obvious that the armed services could not get the manpower they needed as long as they adhered to the standards set, it was decided to eliminate virtually all dental health standards. As a result of this change in policy, however, the services found themselves with hundreds of thousands of dental cripples in their ranks. Therefore, they were forced to induct more than 20,000 dental officers and undertake a large-scale program of dental rehabilitation. Under this program army dentists alone reconditioned the mouths of more than 1,000,000 men.

Reasons for Dental Neglect

Obviously, an energetic, soundly conceived and properly coordinated attack on dental deficiencies must be launched if we are to raise the deplorably low level of dental health which prevails throughout the nation. Prerequisite to such an attack is an understanding of the basic factors responsible for dental neglect. Chief among these factors are:

1. Lack of education and failure to appreciate the results of dental neglect.
2. The high cost of dental care.
3. Shortage and maldistribution of dental personnel and facilities.
4. Inadequate research on the causes and treatment of dental diseases and defects.

The bill here reported by your committee would help to overcome factor 4. It should be noted, however, that substantial progress toward the improvement of our dental health, and the elimination of illnesses resulting from poor dental health, will not be made until legislation designed to overcome factors 1, 2 and 3 is adopted by the Congress.

Lack of Research

There is no reliable estimate of the amount of funds devoted to dental research, but in comparison to the magnitude of the problem the amounts spent are negligible. The largest expenditure for this purpose is made by the National Institute of Health of the United States Public Health Service, and this is only about $50,000 a year.

Outstanding dental scientists testified at the hearings that dental research, if adequately financed, might reasonably be expected to find means of combating dental decay, and thus reducing substantially the ravages of this almost universal disease. Indeed, the only hope of successful attack upon the problem, given the present lack of dental personnel, lies in finding the cause of dental caries. Once the cause is found, means of preventing the disease can be devised.

S. 190 would for the first time make funds available for a well-planned research program on dental ills. The bill would establish a Dental Research Institute in the United States Public Health Service, and would enable grants of funds to non-profit research institutes, universities and laboratories. It would also provide research fellowships in the proposed Dental Research Institute.

Explanation of the Bill by Sections

Section 1

This section provides that, for the purposes of conducting research, investigations, experiments and studies relating to the cause, diagnosis and treatment of dental diseases, and conditions assisting other public and private agencies in such research activities, and promoting the coordination of such activities, with a view to the widespread use of the most effective methods of prevention, diagnosis and treatment of dental diseases and conditions, there is established the National Institute of Dental Research as a permanent division of the National Institute of Health in the United States Public Health Service.

Section 2

This section provides that the Surgeon General of the Public Health Service is authorized and directed, through the Institute of Dental Research and the cooperation of the National Advisory Council, to:

1. Conduct, aid and promote coordination of dental research as well as the useful application of their results.

2. Provide fellowships in the Institute, and secure consultation services of experts.

3. Cooperate with state health agencies in the prevention and control of dental diseases and conditions.

Section 3

This section provides for the creation of a National Advisory Dental Research Council consisting of six appointed members (by the Surgeon General with the approval of the Federal Security Administration) to be selected from leading dental, medical or scientific authorities who are outstanding in the study, diagnosis or treatment of dental diseases and conditions. At least four of these members must be dentists. The Surgeon General ex-officio is the chairman of the Council.

Section 4

This section provides that the National Advisory Dental Research Council is authorized to:

1. Review dental research projects submitted to it or initiated by it and certify approval to the General Counsel such projects as it believes would make valuable contributions to human knowledge with respect to the cause, prevention or methods of diagnosis and treatment of dental diseases and conditions.

2. Collect information as to studies in dental research and with the approval of the Surgeon General make the information on such studies available through the appropriate publications for the benefit of health agencies and organizations, physicians, dentists or other scientists, and for the general public.

3. Review applications for grants-in-aid from universities, hospitals, laboratories or other institutions, both public and private, from individuals, for research projects relating to dental diseases and conditions, and to certify to the Surgeon General its approval of applications of projects which would make valuable contributions to human knowledge with respect to dental research.

4. Recommend to the Surgeon General for acceptance, conditional gifts made under section 6 of the act and to make recommendations to the Surgeon General in carrying out the provisions of the act.

Section 5

This section provides that in carrying out section 2 all appropriate provisions of section 301 of the Public Health Service Act shall be applicable to the authority of the Surgeon General.

Section 6

This section provides that the Federal Security Agency Administrator is authorized to receive unconditional gifts for dental research, or for acquisition of grounds, or the construction, equipment and maintenance of premises, buildings and equipment for the Dental Institute. Conditional gifts may be accepted by the Administrator if recommended by the Surgeon General and the Council.

Section 7

This section provides an appropriation of not more than $2,000,000 to erect and equip a suitable and adequate building and facilities for the Institute after the end of the war, and an annual appropriation of $730,000 to carry out the purposes of this bill.

As introduced, S. 190 authorized the appropriation of not to exceed $1,000,000 to erect and equip a suitable building and facilities for the National Institute of Dental Research, which would serve as a focal point for research carried on under the bill. It was made clear to your committee, however, that such an amount would not be sufficient to construct the building and facilities contemplated by the original bill. The estimates on which the $1,000,000 figure was based were made before the war. Since that time the cost of construction and acquisition of land has increased considerably. Of course, if a lesser amount is needed to construct the building and facilities contemplated by the bill, there is no requirement that the full $2,000,000 be appropriated, since the bill merely authorizes the appropriation of "a sum not to exceed $2,000,000."

Section 8

This section authorizes to be appointed in the Public Health Service, in accordance with applicable law, such commissioned officers

as may be necessary to aid in carrying out the act. It also authorizes the Surgeon General, with the approval of the Federal Security Agency Administrator, to make necessary rules and regulations to carry out the provisions of the act. "Dental diseases and conditions" are defined as "diseases and conditions affecting teeth and their supporting structures and other related diseases of the mouth." The act takes effect thirty days after enactment.

REPORT OF ACTIVITIES TO CHANGE STATUS OF ARMY DENTAL CORPS

The Committee on Legislation of the American Dental Association was instructed by the 1944 House of Delegates to introduce legislation to change the administrative status of the Army Dental Corps similar to the provisions of the Navy Dental Bill then pending in Congress. The committee delayed action on these instructions for the following reasons:

1. It seemed advisable, for reasons of strategy, to complete enactment of the Navy Dental Bill before introducing an Army Dental Bill. The Navy Dental Bill passed Congress in December 1945 and became operative June 28.

2. The Director of the Dental Division of the Army advised us that everything possible through legislation could be accomplished by changes in regulations. The committee desired to exhaust every possible means of bringing this about and, therefore, conceded to the requests of the Director of the Dental Corps for time to secure the necessary changes in Army Regulations.

3. The committee did not have the support of the chief administrative officers of the Army Dental Corps for a legislative program as it did have in the Navy. Since we were at war, it was difficult to secure cooperation from dental officers in the regular Army who favored legislation because many of them were on foreign service.

The Committee on Legislation, after lengthy correspondence covering months of negotiations and after numerous conferences with the Director of the Dental Corps and the Surgeon General of the Army, finally concluded that legislation is the only means through which we can hope to secure an improvement in the administrative status of the Army Dental Corps. Therefore, through consultation with dental officers in the Army, members of Congress and other advisers, an Army Dental Bill was drafted and on June 11 Congressman Sparkman of Alabama introduced it into Congress. It is known as H.R. 6750.

In order that the membership may fully understand our endeavors to secure satisfactory changes through conferences and the reasons for our final decision that legislation is the only solution, the following series of letters with comments is published:

Correspondence with Comments

At the ad interim meeting of the Board of Trustees in February 1945, General Mills urged the Board and the chairman of the Committee on Legislation that he be given time to accomplish, through changes in regulations, the desired improvement in the status of the Dental Corps. The following letters substantiate General Mills' point of view:

March 6, 1945

My dear Doctor Flagstad:

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. . . . . .

We have our draft of regulations all completed and, due to the fact that we have run into some opposition, I am awaiting General Kirk's return from overseas before proceeding. We expect him back in a day or two. It takes quite a bit of time to change a regulation as

so many boards have to pass on it, but I will keep you posted on our progress. If we finally get it approved, it will be some time before we get the printed copies available for publication.

I am enclosing a copy of a letter I sent to Harold Hillenbrand for publication, in which you will note that I request that no steps be taken toward legislation until it is determined the success we will have in changing the regulation.

With highest personal regards, I am

Sincerely,
R. H. Mills
Major General, U. S. Army,
Director, Dental Division.

February 15, 1945

Dear Doctor Hillenbrand:

A controversy of major importance has arisen in certain circles of the American Dental Association, pertaining to the present and future status of the Army Dental Corps. There are those who believe that all problems can be solved, and that all personnel associated with the Corps will attain undisputed equitable consideration, in accordance with the desires of dentistry, through the medium of federal legislation. Then there are those who desire, through legislative channels, to divorce themselves from the Medical Department.

It is my opinion that legislation is not essential or even desirable, provided significant changes can be made with the existing laws through a modification of the present accepted Army Regulations. General Kirk, the Surgeon General, has given the Dental Division a free hand in the direction of its policies and personnel. Every cooperation and assistance has been afforded the dental staff in the Surgeon General's office, and if a comparable relationship could be obtained throughout all the channels of command, then the primary objections now raised by many with reference to the Medical Department would be erased. General Kirk is fully cognizant of the administrative problems in some of the lower echelons of command, and accordingly plans for a change in Army Regulations are now under way. It is believed that the proposed change in Army Regulations, if approved, will accomplish more over a period of time than if forceful legislative methods are employed. Since dentistry is a profession with its primary objective directed to the preservation of health, and since dentistry must work with medicine for the best interests of the war effort, legislation which would force an autonomy for the Dental Corps at this time would result in a false gain.

It is my hope that those in the profession, who are committed to the belief that legislation is the only solution to the future welfare of the Corps, will first evaluate the results obtainable through a change in Army Regulations before the enactment of laws is attempted.

The above letter is submitted to you for publication in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION. It is believed these comments will assist in clearing the position the Dental Division has taken toward the question of autonomy for the Army Dental Corps.

Sincerely yours,
R. H. Mills

March 9, 1945

Dear General Mills:

. . . . . .

. . . . . .

I was in hopes a draft of the prepared changes in regulations would be available for our study by this time. However, I can understand that to secure the approval in the changes of regulations from all the various boards is considerable of a task and takes some time. Therefore, I shall use my influence to persuade those who are pressing for action that they exercise some patience. Perhaps you can get to the Surgeon General as soon as he returns from overseas and press upon him the importance of action in this matter.

I appreciate the efforts you are putting forth in regard to changes in the regulations to improve the status of the Dental Corps in the Army.

Sincerely yours,
Carl O. Flagstad
Chairman, Committee on Legislation

The proposed changes in the regulations did not come through when anticipated, so the following letters were exchanged:

June 11, 1945

Dear General Mills:

I have been patiently waiting for the proposed changes in Army Regulations which would create a satisfactory status of the Den-

tal Corps in the Medical Department of the Army. In February you were enthusiastic about the possibility of securing the necessary alterations and promised that very shortly you would send me a copy of the plan. However, the months have slipped by and nothing has come to indicate you are succeeding in accomplishing the objective we desire. In the meantime, I have been pressed from many quarters urging the Committee on Legislation to take action in accordance with instructions given them by the last House of Delegates.

The time has come when I must ask you to state frankly whether there is any possibility of changing regulations to bring about a satisfactory status of the Dental Corps and, if so, when can we expect them to be put into operation. If you have sincerely endeavored to secure the necessary changes in regulations, you should know by now the reaction of the General Staff.

Dentistry has been very considerate in this matter but our patience has been worn extremely thin by continual unfulfilled promises of the Army.

I have been in hopes that you might have the honor of placing the Dental Corps in its proper relation in the Medical Department. It would seem that a crowning achievement of the chief of the Dental Corps would be to establish his profession in its rightful status. I am still in hopes that this may be accomplished through channels and that you might be the instrument for bringing it about. I would appreciate a report from you on this matter.

Sincerely yours,
Carl O. Flagstad

June 15, 1945

My dear Doctor Flagstad:

Your letter of June 11 has been received and, as I am leaving this afternoon to be away for approximately eight days, I am replying immediately.

I have always tried to impress upon everyone concerned that it takes a great deal of time to make such a radical change in regulations as there are so many branches of the Army involved that must review and approve, or make suggestions. If my proposed change in Army Regulations is approved in the near future, it will be the shortest period of time that could be expected for such a change. I have worked very hard to bring about these changes, have stayed in Washington at times when I should have been away in order to get this approved and, through personal contact and continued efforts, it has been approved by most all branches concerned. However, we must still get the approval of one or more branches of the General Staff. Even with that, I am very optimistic over the eventual outcome. I feel that we will have something definite soon after I return to the office and, if so, I will advise you.

I regret very much to see you imply in your letter that there is a doubt in your mind as to the sincerity of my efforts to obtain the desired changes. Certainly no one who is aware of the facts in the case could feel that way.

I am still very confident that these changes in regulations will finally be approved. However, if they are not, I want to state at this time that it will not be because we have not had the full support of the Surgeon General. He has cooperated with us in every way possible and has used his personal influence and contacts to assist us in obtaining an improved status for the Dental Corps by this proposed change in regulations.

Sincerely yours,
R. H. Mills

June 21, 1945

Dear General Mills:

You were quite right in assuming that we are somewhat disappointed over the slowness of action in making progress in the changes in regulations so as to alter the status of the Dental Corps in the Army. This is partly due to the fact that last February you seemed quite certain that the changes could be readily brought about. Now you inform us that it is an extremely difficult task.

I can understand that there are undoubtedly many obstacles in the way of culminating this procedure and I also believe that you have worked faithfully at it. However, the people who are pressing me for legislation cannot be satisfied by continual promises. Personally, I would be patient and accept your assurances.

I shall be in Washington again on June 27 and 28 and, if opportunity presents, I shall call your office for an appointment so that we can have a conference on the matter.

Sincerely yours,
Carl O. Flagstad

At a conference with General Mills in Washington on June 28, 1945, I was impressed with the General's report of his endeavors to convince the General Staff of the Army that changes in regulations to improve the administrative status of the Army Dental Corps were absolutely necessary. However, I surmised that he was having difficulty, and his letters indicated that my supposition was correct.

July 2, 1945

Dear General Mills:

I came away from our conference last Wednesday much pleased with the progress you are endeavoring to make with the General Staff of the Army in regard to a change in the status of the Dental Corps by regulation. It seemed from our conversation that the situation looked more promising than at any time during our consideration of this matter.

I hope that a favorable report will soon be forthcoming and that it will arrive in time so that I can make a statement in my coming report to the Board of Trustees of the American Dental Association. I shall be pleased to receive from you as soon as available a copy of the text of the changes in regulations which you are proposing and which will give us satisfactory changes in the status of the Dental Corps.

With kindest personal regards, I am

Sincerely yours,
Carl O. Flagstad

July 12, 1945

My dear Doctor Flagstad:

I have delayed replying to your letter of July 2 until I could obtain some information on the action being taken on the proposed change in Army Regulations.

The regulations were returned to me yesterday for comment on the wording suggested by a section of the General Staff. While the regulation, as returned to me, is a great improvement over the present one, it still does not fully satisfy me. I have returned it with comments which, if accepted, will greatly strengthen and improve the status of the Dental Corps.

The attitude of the General Staff appears friendly and, while I may not be able to get exactly what I want, I do believe that we can agree on a regulation that will be satisfactory. Just as soon as I get something approved, you may rest assured that I will furnish you a copy of it.

I enjoyed talking to you while you were in Washington, and regret that we do not have the opportunity to sit down and discuss our problems more often.

With personal regards, I am

Sincerely yours,
R. H. Mills

July 16, 1945

Dear General Mills:

Your letter of July 12 and the information it contains concerning proposed changes in Army Regulations is appreciated. I am happy to know that the "General Staff appears friendly," and am in hopes that we can consummate this business satisfactorily and soon.

I am reporting to the Board of Trustees that I have been impressed with your sincerity in endeavoring to change regulations and that, therefore, we are withholding action on the last House of Delegates resolution to introduce legislation to change the status of the Army Dental Corps so that you would have more time to work on the General Staff of the Army.

I would appreciate receiving a report as soon as possible on the General Staff's final action on this matter and also a draft of the proposed changes in regulations so that it might be submitted to the Committee on Legislation and the Board of Trustees for their reactions.

Sincerely yours,
Carl O. Flagstad

July 31, 1945

My dear Doctor Flagstad:

I have delayed replying to your letter of July 16 as I wanted to furnish you with some definite information regarding the change in Army Regulations. I am writing this today as I am leaving this afternoon for the West Coast, to be gone about ten days. However, I do hope to have the regulations changed before I leave.

I have, necessarily, had to make some concessions and we have agreed on the regulations with the exception of one subparagraph. While most of the major forces have agreed with me on that paragraph, there is an officer in one of the Staff branches who objects. We hope to have his concurrence by noon today. If he will not concur, I am making an effort to have them printed anyway. Just as soon as

I know the exact wording of these regulations, I will forward an advance copy to you for your personal information but, of course, they cannot be made public until they come from the printers.

As I said at the beginning, I have had to make some concessions, but I do believe we can get the regulations printed and we will have made a great step forward. It gives us responsibility and authority to administer our own affairs. I cannot help but feel that we will obtain as much through these regulations in the Army as the Navy will through legislation, except of course the permanent grade of our director is only that of brigadier general and that of the Navy will be rear admiral. This, of course, can be taken care of when legislation is introduced to reorganize the Army after this war which, no doubt, will be done.

Will let you hear from me immediately upon my return to the office from the West Coast.

With best wishes, I am

Sincerely yours,
R. H. Mills

The new regulations were sent to our office on August 14, 1945. The correspondence which follows indicates General Mills' hope of their acceptance, even though he states that they are a concession over what we desired, and also records the unfavorable reaction to them as voiced by the Committee on Legislation for the American Dental Association and the dental officers of the Army.

August 14, 1945

Dear Doctor Flagstad:

I have just received three advance copies of our regulations and, therefore, according to my promise, I am forwarding the first one to you with some comments from this office on the advantages gained by this regulation.

While this is not all we desired, it is a wonderful step forward and if dental officers will only exercise this authority, and at the same time use judgment, it should solve quite a few of our problems. I believe that it is better to accept this at this time than to try to initiate legislation. At the end of the war, no doubt, there will be a reorganization of the Army and any changes desired in the organization of the Dental Corps can be incorporated in that law. I would appreciate your writing and letting me know your reaction to these regulations.

With best wishes, I am

Sincerely yours,
R. H. Mills

August 28, 1945

Dear General Mills:

The Committee on Legislation is endeavoring to make an analysis of the changes in Army Regulations regarding the status of the Dental Corps. In your explanation on page 5, number 10 states, regarding the duties of the dental officer, the following:

No. 10: "All recommendations or communications originated by the dental surgeon will be routed through the surgeon who will forward them with appropriate recommendation or remarks."

It is presumed this means the medical surgeon on the post or command. The people on whom I must rely for an analysis of these changes feel that the words, "routed through the surgeon," destroy the effectiveness of the changes and do not give the dental officer the authority we had hoped for. Would it be possible for you to make a further explanation of this provision?

It was our hope that before these proposed changes in regulation were actually published you would submit them to us for consideration and not proceed with their publication until we had all agreed they were satisfactory. It is unfortunate that they have been printed as now I find there is considerable dissatisfaction with the changes, which creates an embarrassing situation.

The fact that the demands for legislation have increased with publication of the changes is an indication of dissatisfaction with them. I would appreciate any further explanation from you that might be helpful.

Sincerely yours,
Carl O. Flagstad

August 30, 1945

My dear Doctor Flagstad:

Your letter of August 28 has just been received and I regret very much to note that you are dissatisfied with our change in Army Regulations. While these changes may not contain all that was desired by some, I am convinced that they are a great improvement in the status of the Dental Corps over the old regulations. I do not agree with you that the words "through the Surgeon" destroy the ef-

fectiveness of these changes. You will note that this states that the Surgeon will forward them with appropriate recommendations and remarks, which prevents any recommendations being thrown in the waste basket and, since all recommendations and communications must be forwarded, I feel sure that the Surgeon will be careful in his recommendations or remarks.

The War Department insisted that the regulations read this way for the reason that the Army is so organized that they will not agree to destroy the chain of command. Should one link in this chain be destroyed, the whole chain might as well be destroyed, and have a branch of the service deal directly with the Chief of Staff or head of the technical service; which would not be sound organization. I think most of the critics of the wording "through the Surgeon" just do not have a thorough understanding of an organization such as the Army.

. . . . . .

After much discussion, and many conferences with the different departments of the War Department, this regulation is the best that could be obtained and I feel that those in a position to know realize that none of the critics of this regulation could have obtained more. I feel that, if dental officers will exercise the authority contained in this regulation, and use good judgment, we will have no difficulty except perhaps in isolated instances.

. . . . . .

May I repeat that, in my opinion, you should not initiate any legislation at this time. The relations between the Dental Corps and the other corps of the Medical Department, and the entire War Department, are most friendly and cordial at this time and I might add that in the postwar planning for the Medical Department, now under study, every consideration possible is being given to the Dental Corps. In fact, these plans provide more for our Corps than we could get if we were a small, separate branch. Therefore, to initiate legislation at this time would tend to destroy this friendly relationship and jeopardize our future status as now being planned.

. . . . . .

All of this is evidence of the respect the Medical Corps has for the Dental Corps, and that the relationship between the two corps is not as some would want you to believe.

I trust you will pardon this lengthy letter but I felt it was necessary to make myself clearly understood.

With personal regards, I am

Sincerely yours,
R. H. Mills

September 10, 1945

Dear General Mills:

Since I've been away from the city for a week, an answer to your letter has been delayed.

My letter of August 28 was not written in the spirit of criticism nor because of a lack of appreciation of the endeavors you have made in changing Army Regulations to improve the status of the Dental Corps in the Army. I believe you have sincerely labored to secure the best possible you could for the Dental Corps. Nor am I critical of the Surgeon General for I have accepted your statement that he is willing to go the limit for dentistry and I have no reason to doubt this assertion. However, from a former conversation with you and from the final results as shown in the new regulations, I must conclude that the General Staff, who apparently are the final authority in this matter, do not appreciate the seriousness of dentistry's desire to have parity of administration with the Medical Corps under a common Surgeon General. I'm certain it isn't necessary to go into a lengthy discussion of what dentistry means by this desire for you certainly understand it doesn't mean, "routed through the Surgeon who will forward them with appropriate recommendations and remarks."

I did not intend that you should submit a draft of forthcoming changes in regulations but I had anticipated you would submit the proposals long before they had reached the stage of being drafted. In February I understood you to say such copy would be sent very soon and again in June at our conference I went away feeling that before definite action was taken we would have an opportunity to review the proposals. While the Army undoubtedly has certain rights which must be

respected, the profession of dentistry also has some rights which the Army should respect.

If you and the Surgeon General have not been able to persuade the General Staff of dentistry's determination to secure justifiable recognition, then perhaps other means must be resorted to.

I'm sorry that it is necessary to write you in this strain, but unfortunately the great majority of the 15,000 officers in the Dental Corps of the Army, from all information I can gather, are dissatisfied with its organization in relation to the Medical Corps and will not accept gracefully a compromise such as has been tendered by the new regulations. Therefore, it is necessary for the Commitee on Legislation to challenge the setup.

I shall also regret if legislation must be undertaken for I had hoped to avoid it. Nobody who has served on this committee and knows the difficulties and misunderstandings which arise in fostering this type of legislation would willfully initiate it. But if it is the only way dentistry can establish its rightful status in the Army, then it must be undertaken.

In any event, this letter is written in the spirit of kindness and with appreciation for the service you have rendered dentistry.

Sincerely yours,
Carl O. Flagstad

September 17, 1945

My dear Doctor Flagstad:

Receipt is acknowledged of your letter dated September 10.

I regret that you still feel that the majority of dental officers are not satisfied with our change in regulations. As I said before, I am still of the opinion that these regulations are a great improvement and those who object to them the most are those who simply do not understand the Army organization or the status of dentistry in the Army.

If your committee is forced to initiate legislation, there is nothing I can do to prevent it. However, I still believe a great deal more can be accomplished by waiting until the reorganization of the Army is up before Congress and then making an effort to see that dentistry has its proper status in the Medical Department.

If the present proposed postwar plans for the Medical Department are ever introduced in Congress, then I am sure your committee could be of a great deal of assistance to dentistry—more so than going out and initiating independent and separate legislation. However, this is my opinion and a great many people do not agree with me.

With highest personal regards, I am

Sincerely yours,
R. H. Mills

September 20, 1945

Dear General Mills:

I appreciate your letter of September 17 and the information that the reorganization of the Army will be discussed before Congress. If those who are in a position to know and who have some authority in matters in relation to Army organization will keep us informed regarding developments, it will be helpful.

I am certain dentistry will wish to participate in any discussion regarding reorganization of the Medical Department in the Army and would appreciate an opportunity to be heard when the proper time comes.

With kindest regards, I am

Sincerely yours,
Carl O. Flagstad

Last February at Chicago in a conference with General Mills, I was informed that the Reorganization Plan for the Medical Department of the Army was in preparation for presentation to Congress and that now was the time to approach the Surgeon General for the inclusion in the plan of changes in the status of the Army Dental Corps. Subsequently, a letter was sent to Surgeon General Kirk requesting a conference.

February 18, 1946

Dear General Kirk:

At a recent conference of the Committee on Legislation of the American Dental Association, it was decided to approach you relative to the contemplated reorganization of the Medical Department and the status of the Dental Corps in this reorganization. As you undoubtedly know, the American Dental Association has been on record for some time as desiring a change in the present status of the Dental Corps in the Medical Department of the Army.

I understand the program for the contemplated reorganization of the Medical Department is still in a state of being developed and therefore it would be desirable for dentistry to be heard by you so that we might secure

proper consideration in the development of this program. Dentistry is eager to assist the Medical Department in strengthening its position in the Army in the reorganization process, but it is also determined that the Dental Corps shall have its rightful place and status in the new setup of the Medical Department. It seems a reasonable request that those who control the future destinies of the Medical Department should at this crucial time listen to dentistry's suggestions regarding the status of the Dental Corps of the Army. Perhaps a plan agreeable to all would develop out of a conference and we could unite our forces in a cooperative effort to secure proper recognition for the Medical Department in the reorganization of the Army.

I would appreciate your reaction to these suggestions and would be pleased to have representatives from our committee meet in conference with you at your convenience.

Sincerely yours,
Carl O. Flagstad

February 20, 1946

Dear Doctor Flagstad:

I shall be very glad to have representatives from your committee who are interested in the postwar Medical Department plan, which includes the Dental Corps, meet here with our planning group.

I am suggesting two o'clock on Tuesday afternoon, March 5, for this meeting. I believe this will give you time to make arrangements for the attendance of the individual committee members. Should this date not be acceptable, please suggest another afternoon during the week of March 4 to 8, 1946.

Sincerely yours,
Norman T. Kirk
Major General
The Surgeon General

March 4, 1946

My dear Carl:

I have just returned to the office and, while I am very busy, I do want to drop you a note and acknowledge receipt of your letter of February 25 and your telegram of March 3.

After discussing the matter with Dr. Camalier, I advised that the conference be called off until you could be present. I believe if the conference is to have any weight at all, that you should be here yourself and, as you know, the date has been changed to next Monday, March 11, at two thirty.

Dr. Camalier tells me that you want to catch the five o'clock plane that afternoon to go back home. You will have ample time, as I am sure the conference will not last more than an hour and the Pentagon Building is not far from the airport.

I am looking forward to seeing you next week. Please excuse haste.

Sincerely yours,
R. H. Mills

Present at this conference on March 11 were: Surgeon General Kirk, General Mills, Colonel Smith, who was to succeed General Mills, Dr. Camalier, Dr. Mead and myself. The results of the conference are recorded in the letters given below:

March 27, 1946

Dear General Kirk:

Several weeks have passed since our conference with you concerning the status of the Dental Corps in the reorganization plans of the Army Medical Department. Since I have received no report, I am wondering just what disposition was made of our requests. It was understood at our conference that you would submit our suggestions to the War Department for their reactions. The American Dental Association is extremely eager to know whether the dental profession is to receive consideration of its objectives for the Dental Corps in the reorganization plans of the Medical Department.

The Committee on Legislation has been instructed by the House of Delegates to secure changes in the administrative status of the Dental Corps of the Army and if there is no hope of receiving consideration of having certain changes incorporated into the reorganization plans of the Medical Department, then we must attack the problem from another angle.

We appreciate the kindness extended to us at the conference of a few weeks ago and assure you that, if some of the inadequacies now existing relative to the administrative authority of the Dental Corps can be corrected in the reorganization plan, we shall give the Medical Department our fullest cooperation in having this plan accepted by Congress.

Sincerely yours,
Carl O. Flagstad

March 28, 1946

My dear Doctor Flagstad:

I am sorry that I haven't worked faster to

give you my answer to Dr. Mead's kind letter of March 12, in which he had an inclosure "Suggestions for Improvement of the Army Dental Corps."

I have today studied General Mills' proposal when AR 40-15 was written August 8, 1945, copy of which is enclosed, and your request as to what you desire in this regulation so that it will not be necessary to ask for legislation to correct the Dental Corps' position in the Medical Department. Before I present what I believe would meet the requirements of all of us to G-1 War Department, for approval, I am asking whether or not this would meet your wishes. The following would be introduced as subparagraph "c" under "3. Administration":

"The dental surgeon of such a command (b above) shall have the right of direct approach to the commanding officer in regard to the carrying out of his mission."

As soon as I hear from you, I will take this matter up immediately.

Sincerely yours,
Norman T. Kirk

April 11, 1946

Dear General Kirk:

After consultation with members of our committee and a group of advisers, we would suggest the following changes in Army Regulations AR 40-15 Dental Corps General Provisions in lieu of the proposal contained in your letter of March 28.

Paragraph "b" of Section 3 of the Regulations be amended to read: "In a theater, service command, or any other headquarters, *and at a post, camp, station, hospital, and any other military installation having dental facilities,* matters relating to the dental service are administered by the dental surgeon."

The underlined portion indicates the proposed change in "b." You will also note that "through the Surgeon" has been omitted.

Paragraph "c" of Section 3 to read as follows: "The dental surgeon of such a command *or other military installation (b above)* shall have the right of direct approach to the Commanding Officer in regard to the carrying out of his missions."

The underlined portion is the change over your suggestion.

Page 2 of Regulations "b" under Section 6, Specific Duties.

(9) "To prepare an annual report on dental matters."

(10) "To route all recommendations and communications originated by him through the commanding officers."

These changes would follow if the first two were adopted. It would also be desirable if some provision could be made whereby a good dental technician or dental assistant can be retained in the dental service on a career basis with an opportunity to advance equal to that of an assistant in the medical service. I understand that at present the man who elects to remain in the dental service can never hope to advance beyond the rank of corporal. This results in the dental service having men of less ambition, since an ambitious man will seek transfer to the medical service in order to obtain a higher grade. If it were possible to set up the first two provisions "b" and "c" of Section 3 directly into the reorganization bill, it would be extremely desirable as it would give assurance of some permanency to the arrangement. However, if this is impossible, changing Army Regulations will have to be acceptable.

Our recent conference with you and your letter have encouraged me to believe that there is a possibility of reaching an agreement on the status of the Dental Corps in the Medical Department. I have been pressed from many sources for introduction of legislation but have been holding off hoping an agreeable solution could be worked out. If you could find it possible to endorse to "G-1 War Department" our recommendations and they would accept them, I'm certain dentistry would lend its fullest cooperation to securing the adoption by Congress of the Reorganization Plan of the Medical Department.

I shall be in Washington to testify at the hearing of the Wagner Bill on April 23 and would be pleased to confer with you further on these matters should you so desire.

With thanks for your kindness, I am

Sincerely yours,
Carl O. Flagstad

April 19, 1946

Dear Doctor Flagstad:

General Kirk has requested me to acknowledge receipt of your letter dated April 11, and to advise you that this matter is being given consideration.

He further states that he will be glad to see

you when you come to Washington on April 23.

With very best wishes, I am

Sincerely yours,
Thomas L. Smith
Brigadier General
Medical Department (DC)
Director, Dental Division

A final conference with the Surgeon General was held in Washington on April 23. While the Surgeon General was courteous and gracious, he indicated that he could not request from the War Department our desired changes in the status of the Dental Corps and intimated that if we wished more than his suggestions we would need to resort to legislation.

The closing letters will indicate our final effort and decision to introduce an Army Dental Bill.

May 13, 1946

Dear General Kirk:

It's been several weeks since our conference. In the meantime, I have reported the results of our meeting to a group of advisers and again sought their advice as to the acceptance of the proposed suggestion, namely, that the following be added as subparagraph "c" in Army Regulations under "3. Administration."

"The dental surgeon of such a command (b above) shall have the right of direct approach to the commanding officer in regard to the carrying out of his mission."

I left our conference with the impression that you are of the opinion this is the maximum change we would be able to secure for the Dental Corps of the Army. At our meeting you stated that this would give the dental officer direct approach to the commanding officer when difficulties arose. The principle of such a regulation specifically applied as suggested in my letter of April 11 was not acceptable to you. It was our hope that a setup could be made to prevent difficulties from arising.

I'm advised by those who are in a position to know that such a provision as the proposed subparagraph "c" would not change the administrative status of the Dental Corps and because of its nature would not be resorted to by a dental officer for fear of retaliation.

I had hoped that through conferences with you an agreeable understanding could be reached and we could secure changes in the status of the Dental Corps which would be agreeable to everybody concerned. Your conversation indicated that further conferences on the subject would be useless. While you were of the opinion that my suggested changes in regulations contained in the letter of April 11 were unreasonable, I am advised by those who have made a study of the subject that it is the minimum we should secure for the Dental Corps.

In simple terms, General, we desire parity of administration for the Dental Corps with that of the Medical Corps under a common Surgeon General. I'm making this final effort to secure such consideration through changes in Army Regulation and in the reorganization plan. If this is impossible, we are prepared to move forward in another direction.

I desire to thank you for your courtesies for you have been very gracious.

Sincerely yours,
Carl O. Flagstad

June 7, 1946

Dear Doctor Flagstad:

Receipt of your letter of May 13, concerning change in regulations affecting the Dental Corps, is acknowledged.

Several conferences have been held and careful deliberation has been accorded the matter since the time of your visit. However, the decision remains unchanged.

Thanking you for your courtesy in writing me, I am

Sincerely yours,
Thomas L. Smith

June 12, 1946

Dear General Smith:

I have your letter of June 7 and have noted the information it contains. I appreciate the careful consideration which you have given to this matter and I am sorry that a satisfactory status for the Dental Corps could not be worked out through our conferences. I have made every possible effort over a number of years to consummate such an objective and I am personally disappointed in its failure.

It is apparent that if we wish to change the status of the Dental Corps in the Medical Department, we must resort to other means. May I assure you that no matter what form this takes, there is no desire to discredit the services of either Surgeon General Kirk, Gen-

eral Mills, or yourself. A situation has arisen where consideration of personalities must be forgotten in order to gain proper recognition for the Dental Corps and maintain the most efficient dental health service for the Army.

With continued best wishes, I am
Sincerely yours,
Carl O. Flagstad

Conclusion

It must be apparent from the above correspondence that the Committee on Legislation has made every possible endeavor to interest the Medical Department of the Army in establishing parity of administration of the Dental Corps with the Medical Corps. While our conferences have been cordial and friendly, I am certain that the chief medical officers do not appreciate or understand the seriousness of dentistry's desire to gain its objective.

In the closing days of his administration, General Mills was extremely helpful in advising the chairman concerning the progress of the reorganization plan and in arranging for conferences. I am convinced that during his term of office he perfectly understood the wishes of the American Dental Association regarding changes in the status of the Dental Corps and sincerely endeavored to secure the changes. However, he met opposition and therefore accepted a compromise which he endeavored to convince the American Dental Association would give the Army Dental Corps the desired status in the Medical Department.

The progress of the Army Dental Bill, H.R. 6750, toward enactment will depend on the degree of active support given to its prosecution by the dental profession and especially the members of the Army Dental Corps. It is our hope that the ranking administrative officers of the Army Dental Corps will have the courage to support this bill openly.—*Carl O. Flagstad, Chairman.*

COUNCIL ON DENTAL HEALTH

WORKSHOPS IN DENTAL HEALTH PLANNING

As the work of the Council on Dental Health of the American Dental Association progresses, it is becoming increasingly apparent that a large share of the responsibility for dental health planning must be assumed by state and local councils on dental health. This fact is especially well illustrated by the need for the immediate adoption of methods and policies for utilizing funds which will become available when the bill sponsored by the American Dental Association (S. 1099) is enacted by Congress.

The bill would provide funds for "establishing and maintaining more effective measures for the prevention, treatment and control of dental diseases, including dental care programs for children, . . . the development and maintenance of effective means for the education of the public concerning dental diseases, . . . studies, investigations and demonstrations in dental health care and education projects."

All of the projects would be initiated and conducted on the state and local level. The bill specifically provides that the funds shall be expended only for such purposes and in accordance with plans presented by the state health authorities. Obviously, state and local councils should participate in the adoption of these state plans.

While the Council on Dental Health can make broad decisions on the national aspects of the dental health problem, and can make some general recommendations for the organization and operation of community dental health programs, nevertheless the major share of program

planning on a local level must be assumed by the state and community agencies.

The Council on Dental Health is of the opinion that the greatest need at the moment is for state and component societies to arrive at decisions as to what can and should be done within the various communities in each state to promote the dental health of the public. The scope and direction of the actions of the Council on Dental Health in the future must of necessity be governed by the decisions that are made locally.

In order to provide the mechanism for collaborating more closely with state and component societies, the Council on Dental Health intends to sponsor a series of planning conferences based on the workshop principle. Workshops have been used successfully for a number of years in the educational and civic improvement fields. In general terms, the purpose of the workshop is to bring together a group of persons who are interested in solving some particular problem, to examine objectively all of the facts which make up the problem and to adopt recommendations for a plan of action.

While it is true that workshops usually are conducted for a period of one or more weeks, it is believed that the basic elements of this planning technic can be concentrated in a three-day session. Dentists would probably find it extremely difficult to be away from their offices during several mid-week days. Therefore, a three-day period was selected, two days of which would probably extend into a week end.

The three-day conference would be divided into three major sessions. On the first day basic facts would be presented by six speakers. The factual summary of the problem would be outlined without an expression of personal opinion as to how the problem should be solved. While the national aspects of the dental health problem would be sketched briefly, emphasis would be placed mainly on an analysis of the dental health needs and resources of the state in which the workshop is held. The subjects would include the status of dental health of the people, dental manpower, ability to pay for dental services, methods of payment, present status of preventive procedures and existing dental health programs.

The second day would be devoted to committee assignments. The dentists attending the workshop would be divided into four groups to give special consideration to particular phases of dental health planning. Although committee assignments would be altered to meet local situations, it is suggested that committees give considerable attention to:

A. Utilization and expansion of dental personnel and ancillary aids
B. Community dental health programs
   1. Objectives
   2. Dental health education
   3. Dental care
   4. Financing of program
   5. Administration of program
C. Responsibility of:
   1. Dental profession
   2. City or county government
   3. School system
   4. Lay committees
D. Experimental or demonstration projects

The third day would be divided into two periods. The first period would be devoted to synthesis and general discussion of the conclusions and recommendations of the committees in which all dentists attending the conference would be expected to participate. During the second period the entire group would vote on the recommendations of the committees, or on amended versions of these recommendations, which would form the basic dental health plan for the state.

The Council on Dental Health is pleased to announce that several state councils on dental health have agreed to carry out workshop projects on a demonstration basis. The first will be

held in Ohio and the second in New York State. Several others will be announced later. The initial attempts will be pilot programs to test the feasibility of applying the workshop idea to dental health planning.

It is hoped that this experience will point the way to a new and constructive activity in which all state and component councils on dental health can eventually engage.—*Allen O. Gruebbel, D.D.S., Executive Secretary.*

BUREAU OF PUBLIC RELATIONS

A.D.A. PUBLIC RELATIONS PROGRAM WINS PRAISE

The public relations program of the American Dental Association is cited in a recent book[1] written by Theodore R. Sills and Philip Lesly, as an outstanding example of establishing general prestige for a group.

The book covers various phases of modern public relations and describes the program of the American Dental Association as representative of a high-level goal in dealing with the public. It points out that in a profession such as dentistry, a public relations program must seek to establish the prestige of the group as well as that of its individual members. Chief points of the A.D.A. public relations program, as it is now in operation, are listed with explanations of the importance of each.

That section of the book dealing with the A.D.A. public relations program follows:

"Representative of a high-level goal, perhaps, is that of the American Dental Association. Although a highly skilled and socially necessary profession, dentistry has never approached the prestige of medicine. Despite the fact that modern dentists must have extensive medical knowledge, considerable surgical skill, and in many cases will overlap the activities of the doctor of medicine, the regard of the public has not been forthcoming.

"Besides professional pride, prestige means to the dentist professional stability, greater public interest in dental health, and more widespread support for the research and progress of his profession. Accordingly, the primary goal of the public relations program for the American Dental Association has been the building of prestige for the profession.

"The chief points in the campaign have been:

"1. *Preventive Dentistry.*—An extensive educational campaign has been conducted through the press, motion pictures, the schools and recreational groups to teach everyone how to care for his teeth. Although the success of this campaign would tend to reduce the business of the dentist, benefits which the public derives from it serve to give the profession a high professional and social standing.

"2. *Dentists' Relations with Patients.*—By prescribing methods of avoiding difficulties, the dentists raise themselves above the level of practitioners who merely righted difficulties which already existed. Also part of this is the system of sending cards to patients reminding them that it is time to have their teeth checked, and the program to impress the public with the need for such check-ups twice a year.

"3. *Widespread Publication of Scientific Efforts of the Profession.*—New discoveries and remedies are publicized, within the limits of rigid accuracy and professional decorum.

"4. *The A.D.A. Seal of Approval.*—

1. Sills, T. R., and Lesly, Philip: Public Relations—Principles and Procedures. Chicago: Richard D. Irwin, Inc., 1945.

Patterned after the seal of the American Medical Association, this is awarded only to those dental products which satisfactorily pass rigid tests. Besides firmly entrenching the American Dental Association as the authority of the profession, this tends to weed out undesirable and quack-inspired products which lower the public esteem for dentistry.

"5. *Emphasis on High Ethics.*—For many years dental associations have been fighting to outlaw advertising by dentists, as it has been universally outlawed for doctors of medicine. This struggle has been difficult because wherever a campaign has been fought it has met the opposition of the press, which derives revenue from the advertising.

"6. *Publicizing of Reports and Speeches.*—Articles appearing in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION are used as the basis for newspaper releases. Papers read at national and regional meetings are used in the same way. By carefully distributing actual copies of these articles and talks to the newspapers, the greatest possible degree of accuracy is assured.

"In one instance, the American Dental Association made a strong gain by publicizing the successful discovery of a treatment for a difficult malady—a discovery made jointly by medicine and dentistry. This helped to make the desired impression, that the dentist is a man of medicine who specializes on the jaw."

DISTRIBUTE 750,000 HEALTH PAMPHLETS

More than three-quarters of a million copies of the pamphlet "Blueprint for Dental Health," which lists major points of the legislative program of the American Dental Association and its objections to compulsory health insurance, have been distributed to members of the profession and to the public by the Bureau of Public Relations.

The original printing of 600,000 copies last April was exhausted several weeks ago and a second printing was ordered. Additional copies are now available for free distribution upon request.

"ATLAS OF THE MOUTH" AGAIN AVAILABLE

Additional copies of "Atlas of the Mouth," an up-to-date reference work published by the Bureau of Public Relations of the American Dental Association, are now available to the profession and the public.

Demands for the Atlas were so great that the original printing was exhausted over a year ago. Paper shortages and printing difficulties delayed the second printing of the work until recently.

Authors of the Atlas are Maury Massler, D.D.S., M.S., director of the Child Research Clinic, assistant professor of histology and lecturer in stomatology (College of Medicine), and Isaac Schour, D.D.S., Ph.D., professor of histology and head of the Department of Histology, College of Dentistry, University of Illinois.

Bound in imitation leather, the Atlas' 104 pages contain 180 illustrations, nineteen in color, of anatomic structures and physiologic conditions as well as certain pathologic conditions of the oral cavity. Its forty-nine full-page plates were executed by Carl T. Linder under the supervision of Professor Tom Jones, head of the Illustration Department of the Chicago Colleges of the University of Illinois. Each plate is accompanied by a page of interpretative text and references.

Because of the scope of the Atlas, no attempt has been made to treat any one subject exhaustively. Sufficient attention is given, however, to the visual presentation of oral structures and relationships to provide the clinician with a sound background for diagnosis and treatment. Furthermore, the subjects covered are so varied and of such common interest that the Atlas will prove particularly helpful in patient education. Among the forty-nine subjects included in the work are: the oral cavity, occlusion of the teeth (normal and abnormal), dental caries, effects of the loss of a tooth, dental erosion, dental fluorosis (in color), the teeth in congenital syphilis, the progress of periodontal disease, common lesions of the buccal mucosa (in color), common lesions of the lips, benign conditions of the tongue, the tonsils, common ailments of the throat (in color), action of the temporomandibular joint in mouth opening and treatment of mandibular fractures.

"Atlas of the Mouth" will make a valuable addition to the library of every dentist and physician and every medical and dental student. The price is $2.50. It is distributed by the Bureau of Public Relations, American Dental Association, 222 East Superior St., Chicago.

POSTWAR PLANNING COMMITTEE

WAR ASSETS ADMINISTRATION OUTLINES PROCEDURE FOR VETERANS IN PURCHASING SURPLUS

President Truman on May 3 signed an amendment to the Surplus Property Act of 1944, giving veterans priority for purchase of dental apparatus and equipment.

The act, among other things, provides for setting aside for sale to veterans exclusively, either for personal or for business use, selected items in heaviest demand and in short supply, and the War Assets Administration has included dental apparatus and equipment in this category.

The amendment also advances veterans' former preference in the purchase of any goods for use in establishing their own small enterprises to a general priority second only to that of federal agencies.

Details on procedures to be followed in applying for surplus goods have been outlined by the WAA as follows:

Existing procedures generally will govern certification. Applicants must furnish proof of honorable release from service and a description of the property sought.

Veterans holding appropriate certificates may purchase items on the "set-aside" list for their own personal use as well as for use in a small business or agricultural or professional enterprise. Certificates already on file which include items placed on the "set-aside" list will be honored whenever such items are available. However, since all items on the "set-aside" list are in critically short supply, applicants will generally be limited to a single unit.

Certification for personal use will be limited to items on the "set-aside" list. Such certification will not be made for items previously certified for use in a small business, professional or agricultural enterprise. However, the restriction against more than one certification may be modified to permit additional certification for items not previously requested, which are on the "set-aside" list. For example, a veteran already certified for a tractor, finds typewriters in the set-aside list, and wants to buy one. He may be certified additionally for a typewriter.

Application for any item on the "set-aside" list will be accepted, even though the applications already on hand exceed many times the

available supply. Certification offices have been instructed to inform applicants fully regarding the ratio between the approximate number of applicants and remaining stocks of the item requested.

Whenever any item on the "set-aside" list becomes available, offering will be made to the holders of personal use certificates in the same proportion as their total number bears to the total number of certificates on file for small business or agricultural or professional enterprise.

For example: There are thirty trucks available. The regional office has 100 old certificates and ten personal use certificates on file, or a proportion of one to ten. Notification will be sent to the three applicants for personal use whose certificates bear the oldest dates, and the twenty-seven applicants for non-personal use whose certificates bear the oldest dates.

If a veteran holding a personal use certificate does not exercise his priority upon notification that the property requested is available, he does not lose his place in the chronological file, but will be notified a second and third time, after which his certificate will be placed in an inactive file.

Procedure for allocation of goods remains unchanged. Goods will be offered over areas as wide as circumstances permit.

Under orders of Lt. Gen. Edmund B. Gregory, administrator, 104 veterans' certification offices in all states are preparing to receive all new applicants for certification, the WAA reported.—*C. Willard Camalier, Chairman.*

COUNCIL ON DENTAL THERAPEUTICS

REPORT OF THE SEVENTEENTH ANNUAL MEETING

The seventeenth annual meeting of the Council on Dental Therapeutics was held at the American Dental Association Headquarters Building, 222 East Superior St., Chicago, April 5 and 6, 1946.

The following members of the Council were in attendance:

J. Howard Brown, Ph.D., Sc.D., Johns Hopkins University, Baltimore; Edward C. Dobbs, D.D.S., School of Dentistry, University of Maryland, Baltimore; Paul J. Hanzlik, M.D., School of Medicine, Stanford University, San Francisco; Thomas J. Hill, D.D.S., School of Dentistry, Western Reserve University, Cleveland; Harold Hillenbrand, Editor of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION, Chicago; Milan A. Logan, Ph.D., College of Medicine, University of Cincinnati, Cincinnati; Arno B. Luckhardt, M.D., Ph.D., Sc.D., LL.D., University of Chicago, Chicago; Harry Lyons, D.D.S., School of Dentistry, Medical College of Virginia, Richmond; H. Berton McCauley, D.D.S., National Institute of Health, U.S. Public Health Service, Bethesda, Md.; Victor C. Myers, Ph.D., Sc.D., Schools of Medicine and Dentistry, Western Reserve University, Cleveland; Floyd D. Ostrander, D.D.S., M.S., School of Dentistry, University of Michigan, Ann Arbor; H. B. Pinney, General Secretary of the American Dental Association, Chicago; Charles Sheard, Ph.D., Sc.D., Mayo Foundation, University of Minnesota, and Mayo Clinic, Rochester, Minn.; Donald A. Wallace, Ph.D., secretary of the Council and director of the Bureau of Chemistry, American Dental Association, Chicago.

The following were present at all or part of the sessions on invitation of the Council:

Dr. Austin E. Smith, secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago; Dr. Walton Van Winkle, Jr., secretary of the Therapeutic Trials Committee and assistant to the secretary of the Council on Pharmacy and Chemistry, American Medical Association, Chicago; Dr. H. B. Washburn, Trustee, American Dental Association, St. Paul; Dr. James Wilson, secretary of the Council on Foods and Nutrition, American Medical Association, Chicago; and members of the staff of the Central Office of the American Dental Association.

During the past year, the Council on

Dental Therapeutics has continued, through its work and its program of professional education, to emphasize the necessity and desirability of high standards for the composition and marketing of dental drugs and cosmetics. The cooperation of many of the dental schools and state and local dental societies has helped materially to increase the effectiveness of the Council's program.

Following is a brief summary of some subjects discussed at the meeting:

Analgesia Devices

It is well known that general anesthesia may be a hazardous procedure, and that those who use it should be properly trained. Many dentists are eminently qualified anesthetists. However, promotional efforts for certain types of apparatus for "analgesia," a form of general anesthesia, tend to encourage the control of this potent procedure by unqualified persons, even the patients themselves.

In order to discourage the promiscuous administration of general anesthetics, the Council voted not to accept patient-controlled analgesia devices until such time as their safety is more adequately demonstrated. It was further decided that operator-controlled analgesia devices would be considered for acceptance with the distinct understanding that they are to be used only by those with adequate training in general anesthesia.

The Vitamins

For many years the Council on Dental Therapeutics has accepted brands of oil-soluble vitamins on the ground that some of them cannot be obtained from a well-balanced diet and that they influence dental health, especially the development of sound teeth and supporting structures.

At this meeting the Council voted to consider for acceptance water-soluble vitamins, particularly thiamine chloride, riboflavin, nicotinic acid and nicotinamide or mixtures containing these factors. While the water-soluble vitamins appear to have only nutritional value and may be obtained in sufficient quantities by the normal person from a well-balanced diet, it is recognized that some dental patients are not in normal health, may not be able to consume or assimilate a well-balanced diet and therefore may require added vitamins. Where it is practicable to do so, the patient's physician should be consulted since, while the symptoms of vitamin deficiencies often appear first and perhaps most severely in the mouth, vitamin deficiencies are likely to be associated with impairment of function in other parts of the body.

Penicillin

Recent discoveries with regard to penicillin were discussed at length, and it became apparent that the conservative attitude which the Council has adopted toward this drug was justified. The Council has accepted many brands of penicillin sodium and penicillin calcium. Several brands of troches are currently being considered for acceptance.

The scientific literature concerning the applications of penicillin is weak in that most of the studies reported are inadequately controlled. However, penicillin does have a place in dentistry, provided its use does not lead toward neglect or undue postponement of the essential manipulative and operative procedures upon which the cure of diseased conditions almost invariably depends.

Fluorides

A large number of products which contain fluorides and are proposed for use to prevent dental caries or to relieve hypersensitive dentin have appeared on the market during the past year. None of these products has been accepted by the Council on Dental Therapeutics, and it is the Council's understanding that very few of them have been granted li-

censes by the Food and Drug Administration.

Experimentation with fluoride medication by qualified scientific investigators is encouraged by the Council. However, routine dental practice is not the place for such experimentation. The Council has partially supported the work of Knutson and Armstrong[1] on the topical application of fluorides.

The use of fluorides is still largely experimental, and their routine application in any form by dentist or patient should be discouraged at this time, since the mechanism of their action and the full extent of their possible harmful effects are not known.

It appears that fluorine preparations may devitalize pulps if they are sealed in freshly cut dentin. The precise manner and extent to which such preparations may be applied without endangering the vitality of the pulp has not been determined, so far as the Council is aware.

Recently published findings indicate that the addition of sodium fluoride to dentifrices is without beneficial effect.[2]

Evidence adequate to support the rationale of administering fluorides in the form of bone-meal preparations or other oral pharmaceutical dosage forms is lacking.

The incorporation of fluorides in public water supplies under adequate dental, medical and engineering control is being carried out in a number of cities. Their experiences will demonstrate the suitability of future application of fluorides to community waters. Present evidence would indicate a strong possibility of partially controlling dental caries by this method.

1. Knutson, J. W., and Armstrong, W. D.: Value of Topically Applied Sodium Fluoride in the Control of Dental Caries. Pub. Health Rep. 58:1701, November 19, 1943; 60:1085, September 14, 1945.

2. Bibby, B. G.: A Test of the Effect of Fluoride-Containing Dentifrices on Dental Caries. J. D. Res. 24:297, December 1945.

Professional Education

The Council considered ways and means of bringing more effectively to the profession the knowledge and information which it gathers. Several helpful suggestions were offered. The suggestions are being studied, and it appears that some of them will lead to a broadening of the Council's program of professional education.

It is obvious, of course, that the membership of the Association must be adequately informed of the Council's findings if the Council's program is to be most helpful to the membership which it serves.

Council Consultants

The Council acknowledges the services rendered during the past year by consultants. The assistance of qualified consultants is very valuable to the Council.

Appreciation

The Council wishes to express its gratitude and appreciation to those national, state and local society officers who have cooperated with it during the past year and also to the governing bodies of the American Dental Association for their continued support.

CURRENT LITERATURE

Penicillin Resistance of Bacteria. R. S. Fleming and F. B. Queen. Am. J. Clin. Path. 16:63, February 1946.

From data obtained on almost 1,200 penicillin sensitivity determinations using the tube dilution method, the authors conclude that species of a given organism vary greatly in their tolerance or response to penicillin and that strains within species show considerable variation in their sensitivities. All strains usually considered sensitive to penicillin are not actually sensitive and vice versa.

Laboratory sensitivity tests of the particular infecting strains will enable the clinician to predict the efficacy of penicillin therapy and adjust dosage to the most effective level.—*Paul H. Keyes.*

Overtreatment Dermatitis of the Feet. G. B. Underwood, L. E. Gaul, E. Collins and M. Mosby. J.A.M.A. 130:249, February 2, 1946.

Past treatment patch tests of 400 dermatologic cases were tried. The patients had used an average of four preparations. Forty per cent showed positive reactions to one or more of these preparations. Thirty-five per cent had used the preparations for dermatitis of the feet.

The offender in 35 per cent of the cases was an organic mercurial. Merthiolate was responsible for 90 per cent, phenol caused 14 per cent, ethyl aminobenzoate 8 per cent and tars and derivatives accounted for the other 43 per cent of the reactions.

The organic mercurials, phenol and ethyl aminobenzoate caused 2+ to 4+ reactions. It is believed that the high incidence of reactions to mercury in this locality is explainable on the basis of the extent of its use. Merthiolate is applied to dermatologic lesions ranging from insect bites to neoplasms. Its use in the hospital, especially in surgery, almost amounts to bathing in it.

The tissue reactions of sensitization are observed most commonly on the hand, forearm, foot and leg. Three to five days after treatment of an area with a mercurial, healing or involution seems to be progressing. Suddenly a ring of erythema appears, followed by edema, and soon the wound gapes, the base is pushed to the surface, a creamy pus exudes or the area of dermatitis shows an exacerbation with weeping and spreading. Usually these reactions are looked on as infectious, more of the mercurial is applied or something else is tried which may also contain mercury. If another mercurial is applied, in a few days one is likely to see a fine, vesicular, faintly erythematous dermatitis spreading peripherally from the site of injury or dermatitis. The vesicles may become bullae and the surrounding dermatitis may become hemorrhagic.

The sensitizations seem to affect primarily the hair follicles and the sweat glands. Contact dermatitis from mercurials has been observed after the use of potassium mercuric iodide, Mercurochrome, Mercurophen, amalgam filling, cinnabar, ammoniated mercury, Merthiolate, phenylmercuric nitrate, yellow mercuric oxide, Metaphen and mercury bichloride. The mercury ion plus the tissue reactions—erythema, edema, vesiculation and especially exudation—seem to be a requisite for sensitization. The normal skin is apparently well equipped to withstand mercury contacts. An injured skin or skin shorn of its protective layers, particularly a skin already inflamed by treatments, is favorable soil for sensitization to mercury. Physicians, hospitals, clinics and first aid stations that use mercurial antiseptics risk inducing such sensitization.—*E. Costich.*

On Stomatitis Ulcerosa: Etiology and Therapeutics. B. Ekensten. Acta. Odont. Scand. 6: 79, August 1945.

One hundred and fifty cases of ulcerative stomatitis (Vincent's infection) were studied. General physical examination and laboratory tests were carried out including hemoglobin content, cell counts, bleeding time, sedimentation time, Wassermann and Kahn reactions,

routine urine determinations, gastric acidity and special chemical studies. The following findings were present in the group: anacidity, 38.7 per cent; subacidity, 21.3 per cent; helminthiasis, 22.7 per cent; infectious disease of intestinal tube, 18.7 per cent; purely local causes, 10 per cent; and unknown causes, 6 per cent. Therapy consisted of hospitalization and local treatment with 10 per cent chromic acid and 0.5 per cent sodium chloride mouth washes combined with administration of a sulfonamide, sulfetylthiodiazol. With few exceptions, treatment was effective within four days. One hundred twenty-six patients were examined at monthly intervals for, at most, three months. All relapses except one occurred within the first month after termination of treatment. The final proportion of relapses appeared to be 7 per cent. The monthly incidence of the disease occurring in about 6,000 cases was studied and showed a summit of morbidity in September. Since a similar summit in gastro-intestinal disease in the same series occurred in August, disturbances of the intestinal tract were thought, possibly, to have predisposed to oral infection by lowering general resistance.—*J. E. Gilda.*

Some Observations Concerning the Use of Hypnosis as a Substitute for Anesthesia. R. L. H. Sampimon and M. F. A. Woodruff. M. J. Australia 1:393, March 1946.

The use of hypnosis as a substitute for anesthesia in twenty-nine cases of minor surgery at a prisoner-of-war hospital in Singapore is reported. Included in the cases are twenty-three patients on whom dental extractions were performed. Many of these had several teeth extracted during one session. The advantages of using hypnosis are: (1) nervousness of the patient is entirely eliminated; (2) full cooperation of the patient can be secured; (3) postoperative pain can be reduced to a minimum, and in many cases even prevented; (4) the usual complications of other forms of anesthesia, including postoperative vomiting, do not occur; (5) in dental cases there may be less hemorrhage and more rapid healing of the wound than normally occur when other methods are used; and (6) the method may be used in certain cases in which ordinary anesthetics are contraindicated or cannot easily be employed, for instance, for patients requiring dental extraction in whom pronounced trismus renders the use of local anesthetics difficult. The method used for inducing hypnosis for surgical purposes is described.—*S. W. Leung.*

Recurrent Parotitis. John A. Bigler. Med. Clin. of N. A. 30:97, 1946.

Inflammation of the parotid glands may be roughly divided into four groups: (1) mumps; (2) suppurative parotitis; (3) obstructive parotitis; and (4) recurrent parotitis. This last disorder appears usually in children of 3 or 4 years of age but cases have been observed from the age of 8 months to the twelfth year. The signs and symptoms of the disease are swelling of the parotid glands, either bilateral or unilateral; a red and edematous Stensen's duct opening from which pus may be expressed; occasionally fever; always pain in varying degrees; in severe cases, leukocytic counts ranging from 8,000 to 18,000; and no calculus or foreign body present upon x-ray examination of the parotid glands. The etiology of this disorder is obscure and the condition appears to bear no relation to throat infections, to the presence or absence of the tonsils or the condition of them, or to healthy or diseased gums or teeth. The treatment for recurrent parotitis and several case histories are included.—*S. W. Leung.*

Distribution and General Properties of an Amylase Inhibitor in Cereals. E. Kneen and R. M. Sandstedt. Arch. Biochem. 9:235, March 1946.

The presence in wheat endosperm of a substance which inhibits salivary and pancreatic amylase is described. It also inhibits the amylase produced by the growth of certain bacterial isolates. A similar water-soluble inhibitor is present in rye and in Leati and Schock sorghums. No evidence of the presence of an inhibitor in other cereals could be detected. The inhibiting substance is resistant to the action of temperatures at or below that of atmospheric boiling but is destroyed by autoclaving. It is soluble in water, in very dilute salt solutions and in dilute ethyl alcohol, but is insoluble in concentrated ammonium sulfate solutions, in ether and in 90 per cent ethyl alcohol. It does not dialyze through cellophane membranes. The reaction of the inhibitor with salivary amylase is reversible

since salivary amylase can be precipitated practically free from the inhibitor by 70 per cent alcohol. The presence of the inhibitor may be of some importance in caries etiology for it would tend to reduce the quantities of disaccharide available to oral bacteria. The inhibitor is destroyed by the action of pepsin and so would not be effective during digestion by pancreatic enzymes.—*J. E. Gilda.*

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Titles marked with an asterisk are reviewed below.

*Destructive Effect of Citrate vs. Lactate Ions on Rats' Molar Tooth Surfaces, in Vivo. F. J. McClure, Ph.D., and Stanley J. Ruzicka, D.D.S., National Institute of Health, Bethesda, Md.—1.

*Use of Penicillin as a Root Canal Treatment. Maurice Buchbinder, B.S., D.D.S., Columbia University.—13.

The Editor's Viewpoint.—16.

The Teeth of the Masai. J. Schwartz, M.D., Nairobi, Kenya, East Africa.—17.

*Effect of Topical "Septochem" Applications on Experimental Caries. J. P. Lazansky, University of Rochester.—21.

*Purpose of the Odontoblasts. B. Gottlieb, Baylor University.—25.

*Formation of Secondary Dentin and Related Problems. B. Gottlieb, Baylor University.—29.

*Nutritional Requirements for an Oral Strain of Lactobacillus Acidophilus. David Weisberger, D.M.D., M.D., and Fred George Johnson, D.M.D., Harvard School of Dental Medicine, Boston.—35.

*Order and Age of Eruption for the Deciduous Dentition. Howard V. Meredith, Iowa Child Welfare Research Station, State University of Iowa.—43.

Destructive Effect of Citrate vs. Lactate Ions on Rats' Molar Tooth Surfaces, in Vivo. F. J. McClure and Stanley J. Ruzicka.

The enamel and dentin of rats' molar teeth were exposed to the action of dilute solutions of sodium lactate and sodium citrate, in vivo, the pH of the drinking fluids being respectively in three separate studies as follows: 5.5-5.6, 6.5-6.7 and 7.0-7.2. The destructive effect of the lactate and citrate drinking fluids was studied by comparing the weights of the teeth of test rats and control rats, as well as by scoring the tooth surfaces on the basis of an arbitrary grading system. In all studies, the weight and scoring data, accompanied by ground sections, gave conclusive evidence that the effect of the citrate ion was much more destructive than that of the lactate ion under practically neutral conditions, pH 5.5-7.2. The action of citrate is explained as due to the binding of the calcium of the dentin and enamel by citrate to form a soluble calcium citrate complex—a process which is essentially a nonacid decalcification. Although the destruction of dental tissues by citrate bears no resemblance to caries, the results suggest that in considering the etiology of dental caries less emphasis be placed on acid decalcification and that possibilities of a nonacid decalcification, brought about by bacterial metabolites, be given more attention in dental caries research. The results also suggest further studies in vivo regarding surface effects of other anions in addition to citrate, as well as effects of certain foods and beverages on tooth surfaces.

Use of Penicillin as a Root Canal Treatment. Maurice Buchbinder.

Sodium penicillin and calcium penicillin in oil are studied clinically and bacteriologically in a total of thirty-six cases. A method is presented for preparing and preserving absorbent cotton treatment points containing 1,000 to 2,000 Oxford units.

Both forms of penicillin are effective against most organisms found in the root canal. They are entirely free from irritative effects even when used in massive doses locally. Calcium penicillin remains strongly bacteriostatic when sealed in the root canal for one week. Sodium penicillin tends to lose its potency much faster.

A method is presented for the preparation and preservation of small amounts of dry penicillin (5 to 50 units), impregnated on paper disks. These disks can be preserved for months without loss of potency, and can be used as standards in bacteriostatic tests and similar work.

Effect of Topical "Septochem" Applications on Experimental Caries. J. P. Lazansky.

The unilateral and bilateral topical applications of "Septochem" (a preparation having as its chief components silver nitrate and

indigisol) failed to reduce caries susceptibility in Syrian hamsters and white rats maintained on a caries-producing diet for 120 days. Any effect produced was of an adverse sort.

Formation of Secondary Dentin and Related Problems. B. Gottlieb.

The odontoblastic layer separates the dentin from the tissue by which it is formed, the connective tissue of the pulp. The secondary dentin is not formed by the stimulation of the odontoblasts but by damage to them which eliminates the separating barrier between the dentin and the tissue that forms it. In obliteration of the pulp canals (aging, trauma, hereditary opalescent dentin), the odontoblasts disappear while the connective tissue functions. In internal and external resorption of the tooth, the affected odontoblasts have deteriorated. They are removed by resorption, and deposition starts after the damaged odontoblasts have been removed.

Order and Age of Eruption for the Deciduous Dentition. Howard V. Meredith.

This paper treats the order and age of eruption (gum perforation) of the deciduous teeth in North American children. Its purpose is twofold: (1) to assemble the available research materials on the problem and (2) to present a synthesis of these materials. The findings from twenty-two investigations (including two not previously reported) are first reviewed. These findings are then ordered and integrated in a series of statements which epitomize present knowledge on the problem. Selected conclusions are: 1. The mean age for eruption of the first tooth is 7.5 months. Rarely does the first tooth erupt before the end of the fourth postnatal month or after the close of the first postnatal year. 2. The typical white infant has three erupted teeth at 9 months of age, six at 1 year, twelve at 18 months and sixteen at 2 years. In 1-year-old infants the number of erupted teeth varies from none to a full complement—50 per cent have between four and eight. 3. The characteristic eruption sequence is lower first incisors, upper first incisors, upper second incisors, lower second incisors, first molars, cuspids, lower second molars, upper second molars. Exceptions to the predominant pattern include the eruption of first molars before second incisors, cuspids before second incisors, cuspids before first molars and second molars before cuspids. 4. At all ages from 9 months to 2 years, teeth tend to erupt earlier in males than in females.

Nutritional Requirements for an Oral Strain of Lactobacillus Acidophilus. David Weisberger and Fred George Johnson.

For purposes of studying certain biologic processes occurring in the oral cavity, it seemed desirable to determine the nutritional requirements for the growth of a strain of Lactobacillus acidophilus isolated from the mouth.

Such an organism has been grown successfully in a medium consisting almost entirely of purely chemical substances. These essential growth substances were glucose, tryptophane, sodium acetate, potassium phosphates, thiamin hydrochloride, calcium pantothenate, nicotinic acid and vitamin free casein hydrolysate. When these substances were incorporated into a medium, maximal acid was produced by an oral strain of Lactobacillus acidophilus.

Purpose of the Odontoblasts. B. Gottlieb.

The odontoblasts do not form the dentin. They furnish only the fibrils, thus keeping open a drainage system (the tubules) for the circulation of tissue fluid to the tufts which fix the enamel to the dentin. Without moistening of these fixing fibers, the enamel detaches from the dentin (hereditary opalescent dentin).

Pemphigus Vulgaris: Successful Results Following Transfusion with Blood from Persons Who Had Recovered from the Disease. A. W. Grace and L. D. Hellman. Arch. Derm. and Syph. 53:249, March 1946.

The cutaneous and constitutional manifestations of pemphigus vulgaris in two persons seriously ill with the disease cleared rapidly after transfusion of blood from persons who had recovered from the disease. The authors report the case histories of patients who recovered and those treated. Of interest is the fact that all patients had pronounced oral lesions. The suggestion is made that blood from recovered patients contained antibodies which neutralized the activity of the agent of pemphigus vulgaris.—*Paul H. Keyes.*

DEATHS

Alexander, Alva, Peoria, Ill.; died April 20; aged 48.

Amiot, George, Sidney, Nebr.; Dental School, Northwestern University, 1905; died April 15; aged 65.

Anderson, Earl A., Boston; Dental School, Harvard University, 1912; died April 4; aged 53.

Andrews, Robert H., Binghamton, N. Y.; College of Dentistry, University of Southern California, 1915; died June 7; aged 55.

Arthur, Thomas T., Dayton, Ohio; School of Dentistry, Indiana University, 1943; died January 12; aged 26.

Ashburn, J. M., Gallatin, Tenn.; School of Dentistry, Vanderbilt University, 1892; died March 30; aged 79.

Atwood, Almon G., Portland, Ore.; College of Dentistry, University of Minnesota, 1898; died March 25; aged 69.

Baird, Harold E., Santa Barbara, Calif.; died April 18; aged 44.

Ball, Louise C., New York; School of Dental and Oral Surgery, Columbia University, 1915; died May 31; aged 59.

Barnfield, William F., Indianapolis; School of Dentistry, Washington University, 1933; died June 1; aged 32.

Beatty, Albert J. T., Tuttle, Okla.; Dental School, George Washington University, 1904; died March 23; aged 64.

Blum, Cora, Seattle; died April 22.

Bourn, William M., San Antonio, Texas; School of Dentistry, Kansas City-Western Dental College, 1899; died May 1; aged 78.

Bowker, Arthur J., Jersey City, N. J.; Baltimore College of Dental Surgery, University of Maryland, 1907; died April 25.

Breslow, Meyer, Brooklyn, N. Y.; School of Dental and Oral Surgery, Columbia University, 1906; died April 30; aged 61.

Buetzow, Ed W., Pittsburgh, Pa.; died June 4.

Carter, Lorenzo R., Charleston, W. Va.; College of Dentistry, Howard University; died April 10.

Clifford, Joseph, Dorchester, Mass.; Dental School, Harvard University, 1916; died June 3; aged 52.

Cobbs, Allison C., Plainfield, N. J.; died April 7; aged 41.

Coburn, Frederick, Fox Point, Wis.; died April 3; aged 39.

Cronin, Richard P., Washington; Dental Department, National University, 1902; died April 18; aged 76.

Cunningham, Edward L., Providence, R. I.; Baltimore College of Dental Surgery, University of Maryland, 1909; died May 5; aged 61.

Dawley, George A., Providence, R. I.; died May 31; aged 77.

Demers, Albert J., Auburn, R. I.; died April 28; aged 50.

Dugan, Justice C., Hinsboro, Ill.; died April 20; aged 71.

Dunwoody, Jesse E., Philadelphia; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1888; died April 27; aged 82.

Earnhardt, George E., New Smyrna Beach, Fla.; School of Dentistry, Atlanta-Southern Dental College, 1924; died April 13; aged 46.

Fahrney, Welty B., Timberville, Va.; School of Dentistry and the Baltimore College of Dental Surgery, University of Maryland, 1898; died May 24; aged 68.

Fairweather, Earl C., New York; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1902; died June 10; aged 65.

Finch, Connie B., Jonesboro, Ark.; School of Dentistry, Vanderbilt University, 1909; died April 7; aged 60.

Firnstahl, F. F., Wisconsin Rapids, Wis.; Dental School, Marquette University, 1924; died May 13.

Gardner, Frank L., White Bear, Minn.; School of Dentistry, University of Minnesota, 1923; died April 5; aged 56.

Gaynor, Francis J., Bridgeport, Conn.; died May 24.

Geduldig, Chester J., Chicago; College of Dentistry, University of Illinois, 1919; died May 30; aged 51.

Gilman, Eugene C., Boston; died May 6; aged 88.

Ginn, D. Clifton, Boston; died May 8; aged 57.

Goldman, Albert A., Oil City, Pa.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1905; died April 3.

Hackard, William A., East Quogue, N. Y.; School of Dentistry, Temple University, 1889; died May 19; aged 79.

Hair, George F., Columbia, S. C.; Baltimore College of Dental Surgery, University of Maryland, 1892; died April 16; aged 76.

Halderman, Harold E., Dayton, Ohio; College of Dentistry, Ohio State University; died April 27; aged 37.

Hall, Oscar C., Chicago; Chicago College of Dental Surgery, 1892; died May 21; aged 72.

Hammond, Harry B., Shelbyville, Mo.; School of Dentistry, Washington University, 1898; died May 4; aged 74.

Heidtman, Orville C., Wright City, Mo.; School of Dentistry, Washington University, 1908; died April 20; aged 60.

Henderson, Fred L., Quakertown, Pa.; Pennsylvania College of Dental Surgery, 1904; died April 17; aged 69.

Herbein, Howard J., Pottsville, Pa.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1883; died April 15; aged 85.

Hewitt, Jasper L., Portland, Ore.; died April 6; aged 86.

Hogan, William J., San Francisco; died April 24; aged 75.

Holch, Henry G., Westfield, N. J.; Pennsylvania College of Dental Surgery, 1895; died May 15; aged 77.

Hulla, Edward, Chicago; College of Dentistry, University of Illinois, 1903; died May 1; aged 62.

Iseldyk, Martin I., Comstock Park, Mich.; died May 26; aged 37.

Jasman, Robert, Monona, Iowa; Chicago Dental School, 1902; died February 16; aged 65.

Kendall, Walter G., Boston; Tufts College Dental School, 1881; died June 7; aged 92.

Kiddey, H. Edward, Newcastle, Ind.; School of Dentistry, Indiana University, 1922; died March 20; aged 45.

Lear, Morris, Ridgewood, N. Y.; New York College of Dentistry, 1915; died May 6; aged 52.

Lechter, Max C., Newark, N. J.; died April 6; aged 48.

Lee, Charles W., New Britain, Conn.; died April 15; aged 76.

Leslie, F. A. (Ted), Oakland, Calif.; College of Dentistry, University of California, 1908; died April 12; aged 61.

Loertz, John W., Seymour, Ind.; School of Dentistry, Indiana University, 1900; died June 11; aged 71.

Lowrey, J. Dayton, Pottsville, Pa.; Pennsylvania College of Dental Surgery, 1888; died March 9; aged 81.

McCreight, J. S., Wilcox, Pa.; died January 15; aged 86.

McGowty, William H., Scranton, Pa.; Department of Dentistry, Medico-Chirurgical College of Philadelphia, 1909; died April 25.

McIntire, John T., Bristol, Va.; School of Dentistry, University of Louisville, 1902; died May 8; aged 73.

Malone, Cornelius, Reform, Ala.; Atlanta Dental College, 1909; died March 29; aged 64.

Maloney, Roderic S., Auburn, Ind.; Chicago College of Dental Surgery, 1896; died May 10; aged 75.

Mann, George E., St. Petersburg, Fla.; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1890; died April 9.

Marr, John A., Brooklyn, N. Y.; New York College of Dentistry, 1895; died June 14; aged 78.

Massey, Lawrence K., Byars, Okla.; died February 14.

Mauer, John F., El Monte, Calif.; died April 13; aged 69.

Moffett, William J., New York; died January 4.

Montgomery, W. R., St. Joseph, Mo.; Kansas City Dental College, 1917; died April 2; aged 50.

Moore, John A., Bloomington, Ill.; College of Dental Surgery, University of Michigan, 1892; died April 6; aged 75.

Moos, Leo P., Moorehead, Minn.; College of Dentistry, University of Minnesota, 1913; died April 25; aged 66.

Nemecek, Frank V., Middletown, Conn.; New York College of Dentistry, 1918; died May 21; aged 49.

Newton, William H., Worcester, Mass.; School of Dentistry, Temple University, 1886; died May 28; aged 84.

Nolan, Robert J., Gary, Ind.; died April 1; aged 45.

Norwood, Benjamin I., Danville, Ill.; Chicago College of Dental Surgery, Loyola University, 1904; died April 12; aged 73.

Oakey, Washington J., Saranac Lake, N. Y.; died April 12; aged 73.

O'Shea, Francis P., Worcester, Mass.; Baltimore College of Dental Surgery, 1913; died June 6; aged 57.

Osterman, Robert E., Portland, Ore.; School of Dentistry, North Pacific College of Oregon, 1917; died April 13; aged 52.

Peebles, W. J., Titusville, Pa.; School of Dentistry, Temple University, 1895; died March 31; aged 79.

Petty, Claude V., Mason City, W. Va.; died June 2; aged 77.

Phillips, Merrick C., Red Hook, N. Y.; School of Dentistry, Temple University, 1903; died April 12; aged 64.

Pofcher, Joseph, Revere, Mass.; Tufts College Dental School, 1918; died April 11.

Raabe, Charles S., Philadelphia; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1911; died April 20; aged 57.

Rathbone, Ralph R., Washington; College of Dentistry, State University of Iowa; died April 9; aged 69.

Reily, G. T., Fulton, Mo.; died March 7.

Reynolds, Arthur H., Chatham Village, Pa.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1899; died May 6; aged 71.

Roland, Wilmer R., Lewisburg, Pa.; Baltimore College of Dental Surgery, University of Maryland, 1895; died May 24.

Rose, William, Asbury Park, N. J.; died April 12; aged 70.

Roth, Clyde E., Elyria, Ohio; School of Dentistry, Indiana University, 1925; died March 10; aged 47.

Rothschild, Henry I., Buffalo, N. Y.; died April 4; aged 51.

Routzong, Clarence, Dayton, Ohio; College of Dentistry, Ohio State University, 1918; died March 25; aged 50.

Russell, Pearl L., Ft. Wayne, Ind.; School of Dentistry, Indiana University, 1909; died March 26.

Sabine, Rolla, Torrington, Conn.; School of Dentistry, University of Buffalo, 1897; died April 18; aged 84.

SanJule, Carl K., North Tonawanda, N. Y.; School of Dentistry, University of Buffalo, 1926; died June 6; aged 51.

Senior, Frank W., Woonsocket, R. I.; School of Dentistry, Temple University, 1898; died April 5; aged 71.

Shumaker, O. D., Webster Springs, W. Va.; Baltimore College of Dental Surgery, 1918; died April 4.

Sidey, Hugh F., Atchinson, Kan.; Western Dental College, 1894; died April 10; aged 72.

Siedlik, Stanley T., Shenandoah, Pa.; School of Dentistry, University of Pittsburgh, 1927; died May 18.

Simione, William J., Youngstown, Ohio; died in April; aged 35.

Skovgard, Wenzel, Iowa Falls, Iowa; School of Dentistry, North Pacific College of Oregon, 1913; died February 11; aged 60.

Sledge, Chester H., Castor, La.; College of Dentistry, University of Tennessee, 1908; died April 1; aged 61.

Slorah, George W., Rochester, N. Y.; School of Dentistry, University of Buffalo, 1906; died May 2; aged 64.

Smith, William J., Buffalo, N. Y.; School of Dentistry, University of Buffalo, 1916; died March 25; aged 52.

Snipes, Thomas W., Pasadena, Calif.; College of Dentistry, University of Southern California, 1911; died March 17; aged 59.

Somer, Lester E., Cohocton, N. Y.; died April 3; aged 65.

Spencer, Ralph E., Ottawa, Kan.; Western Dental College, 1905; died March 21; aged 67.

Steer, Halsey G., Fort Plain, N. Y.; Baltimore College of Dental Surgery, University of Maryland, 1890; died April 6; aged 80.

Stevenson, William D., Seattle; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1906; died March 27; aged 65.

Summers, Wilbur B., Lexington, Tenn.; died March 21; aged 75.

Swartz, Ernest, Cleveland, Tenn.; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1901; died April 26; aged 68.

Tabb, Taylor, Gilroy, Calif.; School of Dentistry, College of Physicians and Surgeons of San Francisco, 1914; died April 1; aged 61.

Tashjian, A. K., Los Angeles; died in March; aged 55.

Tellman, G. P., Kansas City, Mo.; School of Dentistry, Washington University, 1907; died February 22; aged 66.

Thompson, John F., Chicago; died April 2; aged 58.

Thompson, Noel R., Brookhaven, Miss.; School of Dentistry, University of Louisville, 1905; died January 27.

Threlkeld, Henry S., Dayton, Ohio; died March 28; aged 54.

Thrush, Samuel R., Uhrichsville, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1915; died April 16; aged 53.

Tippin, Joseph Glenn, Olathe, Kan.; School of Dentistry, Kansas City-Western Dental College, University of Kansas City, 1917; died February 14; aged 53.

Tripp, E. S., Blair, Nebr.; College of Dentistry, University of Nebraska, 1923; died March 2; aged 51.

Turpin, C. Murray, Kingston, Pa.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1904; died June 4; aged 68.

Uansa, O. G., McKees Rock, Pa.; died November 16.

VanDuesen, Robert O., Philadelphia; Pennsylvania College of Dentistry, 1898; died May 12; aged 76.

Vidal, Wilma J., Baton Rouge, La.; died April 6.

Wadlinger, George W., Pottsville, Pa.; School of Dentistry, Temple University, 1907; died May 10; aged 60.

Warren, A. A., Houston, Texas; Kansas City Dental College, 1896; died April 8; aged 71.

LIST OF ARMY DENTAL OFFICERS SEPARATED FROM SERVICE

The following list of dental officers separated from the Army Dental Corps does not include rank because such information is no longer furnished by the Surgeon General's Office. Publication will be given to other names as soon as possible.

Alabama

Alexander City	Petrey, Donald S.
Ashland	Adams, Paul D.
Auburn	Brownfield, Robert G.
Birmingham	Gamewell, Robert L., Jr.
Birmingham	Orr, Milton L., Jr.
Birmingham	Robinson, John A. C.
Birmingham	Townsend, Armon L.
Brewton	Johnson, James W.
Florence	Doss, Lurel G.
Haleyville	Barker, Creston H.
Luverne	Ellington, Joe W.
Madison	Finney, Frank A., Jr.
Marion	Haley, John P., Jr.
Mobile	Jennings, James W.
Mobile	Wood, Isaac V.
Montevallo	Jackson, William D.
Montgomery	Edwards, Boyd P.
Montgomery	Naftel, Albert J.
Pike Road	Johnson, Henry O.
Prichard	Newburn, Francis H.
Russellville	Blake, Julius Y.
Tallassee	King, Gordon G.
Troy	Foster, Ralph S.
Tuscumbia	Rogers, Harold A.
Waugh	Boyd, Robert L.

Arizona

Jerome	O'Neill, Gerald D.
Phoenix	McCall, Thomas E.
Phoenix	Meade, Arthur H.
Phoenix	Spitalny, Meyer
Tucson	Weiner, Leonard

Arkansas

Batesville	Matthews, Myrlas B.
Lewisville	Butler, Arthur L.
Little Rock	Spurlin, Robert P., Jr.
North Little Rock	Scopp, Irwin W.
Van Buren	Donald, Edgar D.
Wynne	Gillette, John M.

California

Alhambra	Anderson, Stewart A.
Alhambra	Revell, John H.
Antioch	Knight, Verl R.
Arlington	Rimmer, Walter H., Jr.
Balboa Island	Baker, Howard D.
Berkeley	Bishop, Royce A.
Berkeley	Cevasco, Arthur J.
Berkeley	Howe, William C.
Berkeley	Johnston, Howard M.
Berkeley	Kohler, Kent F.
Berkeley	Owens, Maurice J.
Berkeley	Post, Theodore J.
Beverly Hills	Pilger, Theodore W.
Beverly Hills	Schick, Paul H.
Burbank	Ruff, Don A.
Burbank	Smith, Wilfred D.
Compton	Forney, Daniel C.
Compton	Leftwich, Yale V.
Corona Del Mar	Anderson, Marlowe C.
Coronado	Baldwin, Irving R.
Delano	Foor, Glen W.
Exnard	Millham, Thomas E.
Fortuna	Andrain, Milton D.
Fresno	Lazarus, Albert
Fresno	Wolfe, Franklin D., Jr.
Gardena	Stevens, Lester S.
Glendale	Adams, Bruce K.
Glendale	D'Arc, Rupert V.
Glendale	Lusby, Donald W.
Glendale	Vickerman, William A.
Grass Valley	Berryman, Carroll H.
Grass Valley	Rogers, George W.
Hanford	Turner, Floy A.
Hayward	Henningsen, Melvin G.
Hollywood	Karner, Earl E.
Huntington Park	Funk, Charlie D.
Huntington Park	Hubbard, Clinton G.
Huntington Park	Tibbetts, Charles E.
La Crescenta	Marcus, David A.
Laguna Beach	Hill, Merton E., Jr.
Long Beach	Lewarton, Alvin P.
Long Beach	Vaccaro, Sam C.
Los Altos	Curran, John W.
Los Angeles	Andreasen, Juel L.
Los Angeles	Brandstater, Glenn A.
Los Angeles	Brown, Hugh
Los Angeles	Crump, Spencer M.
Los Angeles	Duchowny, Leo H.
Los Angeles	Dun, Frank W.
Los Angeles	Edgerton, Bailey E.
Los Angeles	Fowkes, Reuben L.
Los Angeles	Fox, Harry E.
Los Angeles	Guerrieri, Fernando F.
Los Angeles	Hall, Wendell F.
Los Angeles	Hankins, Elton E., Jr.
Los Angeles	Hiatt, Everett B.
Los Angeles	Hills, Edward L.
Los Angeles	Hurd, George E., Jr.
Los Angeles	Jackson, Charles A.
Los Angeles	Johnson, Harry R.
Los Angeles	Jorgensen, Richard E.
Los Angeles	Kazan, Marvin
Los Angeles	Kim, Yin
Los Angeles	Littlejohn, Vernon L.
Los Angeles	Melford, Sidney G.
Los Angeles	Muchnic, Herbert V.
Los Angeles	Nylin, William A.
Los Angeles	Oliver, Ralph B.
Los Angeles	Pleasant, Hyman A.
Los Angeles	Rucker, Richard D.
Los Angeles	Rumack, Isadore
Los Angeles	Seyfarth, Martin W.
Los Angeles	Smith, Jerome T.

Los Angeles	Ustrich, Harry M.
Los Angeles	Way, Floyd E.
Los Angeles	Westley, A. Leonard
Los Angeles	Wolfrom, Earle H.
Los Angeles	Yure, Milton J.
Los Angeles	Zavodnick, Alexander
Loyalton	Snell, Hollis E.
Lynwood	Parker, Percy O.
Merced	Randolph, John M.
Merced	Zug, Richard W.
Modesto	Taylor, Benjamin S.
Monrovia	Biggle, Gilbert L.
North Hollywood	Slasor, Charles V.
North Hollywood	Spicer, Paul E.
Oakland	Auslen, Morris
Oakland	Brown, Lloyd F.
Oakland	Colombe, Walter L.
Oakland	Dykes, Benjamin C.
Oakland	Heskin, Manheim N.
Oakland	Lundblad, Arthur L.
Oakland	Maimone, Paul E.
Oakland	Manger, William I.
Oakland	Railsback, Richard M.
Oakland	Saito, Hiro L.
Oakland	Scudder, Edward L.
Oakland	Tompkins, Richard E.
Oildale	Christensen, Samuel D.
Palo Alto	Ashcraft, Edward
Pasadena	Benedict, Harold R.
Pasadena	Patterson, Harry C., Jr.
Pomona	Lawrence, Albert R.
Red Bluff	Frey, Paul E.
Riverside	Neblett, William M. E.
Riverside	St. Clair, James H.
Riverside	Swain, Ray C., Jr.
Sacramento	Florence, Don C.
Sacramento	Graham, Herbert, Jr.
Sacramento	Pinion, John R.
Sacramento	Turner, Eldridge K.
St. Helena	Stern, Stuart F.
Salinas	Hayes, William M.
San Diego	Armstrong, John E.
San Diego	DeLyre, Wolf R.
San Diego	Jopling, John F.
San Diego	Nelson, John P.
San Diego	Newberry, Edwin D.
San Diego	Woodruff, Carl E.
San Francisco	Avakoff, Edward A.
San Francisco	Bean, Jackson F.
San Francisco	Braumstein, Mervin J.
San Francisco	Carman, Gordon A.
San Francisco	Epley, Frederick M.
San Francisco	Greene, Raymond W.
San Francisco	Hardin, Richard M.
San Francisco	Harrison, Walter C.
San Francisco	Hartwell, Everett C.
San Francisco	Healy, Walter J.
San Francisco	Johnson, Armand W.
San Francisco	Kleiser, James H., Jr.
San Francisco	Lager, Melvin P.
San Francisco	Lewis, Thomas M.
San Francisco	Mollinari, Andrew L.
San Francisco	Monsey, Harold L.
San Francisco	Mulvany, Martin J.
San Francisco	Murphy, James P.
San Francisco	Remy, Lucien A.
San Francisco	Rockwitz, Paul R.
San Francisco	Schmohl, Louis W., Jr.
San Francisco	Silberstein, Charles B.
San Francisco	Steinberg, Harry
San Francisco	Stevens, Daniel R.
San Gabriel	Angel, Fred J.
San Gabriel	Beamer, Charles K.
San Jose	Davis, Lorenzo L.
San Mateo	Asturias, Hector
San Mateo	Greco, Sebastian J.
San Mateo	Takahashi, George S.
San Rafael	Sowden, John R.
Santa Ana	Buell, Ronald E.
Santa Ana	Rossiter, Vincent L.
Santa Ana	Stroschein, Herbert T.
Santa Barbara	Lee, Robert R.
Santa Cruz	Johnston, Malcolm
Santa Cruz	Raffanti, Enrico F.
Santa Monica	Frankel, Morris S.
Santa Monica	Van Aken, Ray C.
Santa Rosa	Bridges, Grant N.
Santa Rosa	Evans, William K.
Saratoga	Rosasco, Barney V.
South Gate	Cummins, Haldane C
Studio City	Day, Norman A.
Taft	Moodie, Forrest D.
Tracy	Leal, Leroy G.
Whittier	Flanders, George M.
Whittier	Standler, Paul H.
Woodland	Bennett, Otis W.

Canal Zone

Cocoli	Meyers, Hubert C.

Colorado

Colorado Springs	Ehlert, Robert E.
Colorado Springs	Runyan, Harold C.
Colorado Springs	Stone, James M.
Colorado Springs	Walden, Arthur H.
Denver	Beezley, Allan C.
Denver	Bowden, George F.
Denver	Bruce, Karl W.
Denver	Dickerson, Morgan W. F., Jr.
Denver	Habenicht, Alfred G.
Denver	McCarthy, William D.
Denver	Wihr, Norman L.
Durango	Lyle, Robert W.
Englewood	Shaner, William G.
Fort Collins	Dolph, Herbert C., Jr.
Greeley	Holcomb, Harold E.
Logan	Gaffin, Carlos A.
Loveland	Drew, Arthur A.
Loveland	Richards, Francis E.
Pueblo	Simala, Leo J.
Trinidad	Harper, Thomas C., Jr.

Connecticut

Ansonia	Jacobs, Aaron H.
Bridgeport	Cohan, S. Howard
Bridgeport	Curley, Robert J.
Bridgeport	Feuerberg, Leo
Bridgeport	Milstein, Joseph G.
Bridgeport	Pareles, Mathew J.
Bridgeport	Wasserman, Joseph
Bristol	Francavilla, Carlo
Fairfield	Fischer, Paul C.
Fairfield	Magrini, James V.
Glenbrook	Oill, David S.
Hamden	McVey, George W.
Hartford	Bernert, Robert H.
Hartford	Ginsburg, David S.

Hartford	Hills, Clifford O.
Hartford	Robbins, Clement J., Jr.
Manchester	Fancher, Morris C.
Manchester	Mozzer, Raymond R.
Meriden	Ivers, David G.
Milford	Kanter, Harold
Naugatuck	Mariano, John J.
New Britain	Kuhs, William C.
New Britain	Labas, Charles F.
New Britain	Lasch, Henry R., Jr.
New Britain	Rosenfeld, Bernard H.
New Haven	Amatrudo, Andrew J.
New Haven	Anastasio, Frank M.
New Haven	Bove, Charles
New Haven	DeVita, William N.
New Haven	Kreshover, Seymour J.
New Haven	Petrelli, Eligio L.
New Haven	Pitts, William H., Jr.
New Haven	Sharp, Nicholas A.
Norwalk	Cifatte, Victor J.
Norwalk	Grinnan, John B.
Norwich	Beckenstein, Samuel
Norwich	Farrett, Daniel L.
Norwich	Segal, Julius
Stamford	Bogacki, Stanley F.
Stamford	Brown, Felix P.
Stamford	Jenkins, Bernard S.
Stamford	Weinstein, Morris M.
Stonington	Lawton, James E., Jr.
Thompsonville	Carle, Clarke A.
Thompsonville	Javorski, Francis
Waterbury	Jette, Norman T.
Waterbury	Ostrander, Roger V.
Waterbury	Steponaitis, John A.
Wethersfield	Caldwell, James T.
Winsted	Garbus, Harry

Delaware

Dover	Boone, Myron E.
Wilmington	Harris, Lewis C.
Wilmington	Hirshout, David
Wilmington	Wallwork, Edward W.

District of Columbia

Washington	Bowman, Lawrence W.
Washington	Cashman, Montague A.
Washington	Clemence, John S.
Washington	Diener, Jack
Washington	Dubit, Jack T.
Washington	Eastman, James B.
Washington	Ferebee, Claude T.
Washington	Goldman, Samuel
Washington	Greenberg, Harold N.
Washington	Isaacson, Victor
Washington	Kogan, Milton M.
Washington	Lawson, Beatrix F. R.
Washington	Levinson, Louis
Washington	Milobsky, Louis
Washington	Rosa, Charles M.
Washington	Rothstein, Irving M.
Washington	Sacasa, Fernando F.
Washington	Shumate, Odell H.
Washington	Wake, Wendell W.
Washington	White, Douglas A.
Washington	Williams, Morris H.

Florida

Hollywood	Pell, John R.
Jacksonville	Allen, Robert S.
Jacksonville	Parramore, William F., Jr.
Jacksonville	Patterson, William M., Jr.
Key West	Demeritt, William W., Jr.
Lakeland	Richards, William T.
Miami	Bosworth, Dave L.
Miami	Buhner, William A.
Miami	Fleeman, Jerome
Miami	Levin, Robert S.
Miami	Perpall, John J., Jr.
Miami	Price, Thomas A.
Orange	Lewis, William A., Jr.
Orlando	Barker, Kenneth A.
Orlando	Wahnish, Merrill E.
Palmetto	Schulstad, Lawrence M.
Pensacola	Barrow, Louis R.
St. Petersburg	Stonebraker, John G.
Sarasota	Northen, William L., Jr.
Starke	Murphy, David P.
Tampa	Bruno, Anthony F.
Tampa	Montiel, Everado J.
Tampa	Pasetti, Louis O.
Winter Park	Jennings, Wilbur F.

Georgia

Athens	Hood, Carl M.
Atlanta	Glazer, Isaac J.
Atlanta	Haddock, Carl F.
Atlanta	Horovitz, Walter B.
Atlanta	Knox, Roscoe C.
Atlanta	Ramey, Alton R.
Blackshear	Herzig, Buell G.
Brunswick	Drew, William P., Jr.
Cedartown	Allison, James M., Jr.
Covington	Hill, James C., Jr.
Dublin	Hammond, Robert A.
Milledgeville	Toole, Charles L.
Monticello	Durham, Ralph W.
Quitman	Robertson, John H.
Savannah	Sullivan, Robert F.

Idaho

Boise	Dewinter, Adrian G.
Coeur d'Alene	Wood, George E.
Kellogg	Cornell, George T.
Rexburg	Hoopes, Preston B.
Rigby	Lee, Edwin H.

Illinois

Alton	Bassford, George E.
Alton	Murphy, William H., Jr.
Argo	Lyznicki, Chester A.
Aurora	Peffers, John M.
Aurora	Rasmussen, Leonard C.
Belleville	Kneedler, William A.
Belleville	Kohl, Alphonse P.
Bellwood	Rushmer, Linder A.
Berwyn	Molnar, Charles E.
Berwyn	Mosetick, Theodore R.
Bloomington	Beadles, Elmer L.
Blue Island	Leturno, Henry R.
Blue Island	Scanlan, Thomas J.
Canton	Maxwell, Harry P.
Carey	Chedester, John T.
Carlinville	Stephenson, Wallace O.
Centralia	Gillison, Charles S.
Centralia	Langenfeld, Joseph A.
Centralia	Zibby, Michael
Champaign	Krabbe, Newton J.
Champaign	Newton, Bert W.

Champaign	Van Vranken, Edward J.
Chicago	Abramski, Peter M.
Chicago	Alpern, Elliott W.
Chicago	Appell, Seymour H.
Chicago	Arnstein, Samuel D.
Chicago	Barnett, Melvin
Chicago	Bauer, Mortimer B.
Chicago	Berg, Sidney H.
Chicago	Berman, Oscar M.
Chicago	Biddulph, Wesley G.
Chicago	Block, Jack S.
Chicago	Boehler, Carl
Chicago	Bogacki, Henry S.
Chicago	Bolbat, Walter J.
Chicago	Brewer, Allen A.
Chicago	Brown, Joseph C.
Chicago	Brownstein, Harold
Chicago	Buda, Joseph M.
Chicago	Caruso, Salvatore V.
Chicago	Christensen, Peter B.
Chicago	Chubin, Max M.
Chicago	Claster, Henry
Chicago	Coglianese, Emil J.
Chicago	Cohen, Norman
Chicago	Conger, Don F.
Chicago	Coniglio, Martin J.
Chicago	Crane, Earl R.
Chicago	Cutler, Bernard D.
Chicago	Daniele, Domineck A.
Chicago	DeHaven, William A.
Chicago	DeLarye, William L.
Chicago	Delk, William
Chicago	Dore, John P.
Chicago	Eklund, Verner E.
Chicago	Factor, Benjamin
Chicago	Faermark, Wilbert
Chicago	Filip, Henry J.
Chicago	Fishman, Sydney N.
Chicago	Forkosh, Max P.
Chicago	Friedman, Maurice J.
Chicago	Garofalo, Joseph
Chicago	Goglin, Ralph I.
Chicago	Goldberg, Irving C.
Chicago	Goldthorp, Elmer A.
Chicago	Gordon, Carl C.
Chicago	Gordon, James R.
Chicago	Grohowiak, Fred L.
Chicago	Gutler, Bernard D.
Chicago	Halperin, Abraham S.
Chicago	Harris, Alfred G.
Chicago	Hershman, Victor E.
Chicago	Hoffman, Murray M.
Chicago	Hohman, Ned U.
Chicago	Holzman, Louis K.
Chicago	Howland, Thomas A.
Chicago	Hurwitz, Harry
Chicago	Hutchinson, Harold C.
Chicago	Hutt, Spence A., Jr.
Chicago	Ireland, Robert G.
Chicago	Jastromb, Marshall L.
Chicago	Juhnke, Leon V.
Chicago	Justus, Arthur B.
Chicago	King, Alfred T.
Chicago	Kozak, Edward J.
Chicago	Kreiner, Robert L.
Chicago	Kurby, Felix J.
Chicago	Lapka, John F.
Chicago	Lewallen, Paul B.
Chicago	Lieberman, Irving
Chicago	Luber, Eli
Chicago	McBride, John J.
Chicago	Mackh, Frederick M.
Chicago	Maddox, Walter B.
Chicago	Maskal, Richard J.
Chicago	Mazanec, James A.
Chicago	Mazanec, Raymond L.
Chicago	Melzen, Howard G.
Chicago	Mikula, Edward W., Jr.
Chicago	Mockus, John
Chicago	Murin, Frank A.
Chicago	Nowak, Mitchel J.
Chicago	Ohlenroth, Robert J.
Chicago	Oringel, Howard
Chicago	Osinskis, Walter B.
Chicago	Parkin, Henry H.
Chicago	Pasquini, Leo R.
Chicago	Pearce, John E.
Chicago	Pearlman, Joseph
Chicago	Pintavalle, Edward A.
Chicago	Potashnik, Max
Chicago	Raczynski, Walter V.
Chicago	Rice, Henry J.
Chicago	Rowan, Robert J.
Chicago	Sabarese, Frank E.
Chicago	Sadler, Wilbur J., Jr.
Chicago	Scanlan, Edmund J.
Chicago	Schmidt, Alfred D.
Chicago	Schuessler, Wilbur C.
Chicago	Seifer, Henry H.
Chicago	Shelhamer, Mile D.
Chicago	Smith, Ira M.
Chicago	Solomon, Ben
Chicago	Stern, Leo
Chicago	Swantek, Joseph R.
Chicago	Swirsky, Edward
Chicago	Sylvan, Gustave A.
Chicago	Warady, Seymore C.
Chicago	Wasielewski, Leon R.
Chicago	Wesselhoeft, Herbert D.
Chicago	Wexler, Benjamin L.
Chicago	Wexler, Leo L.
Chicago	White, J. Ronald
Chicago	Wiener, Joseph A.
Chicago	Willer, Maurice R.
Chicago	Winograd, Moses G.
Chicago	Winquist, Dorus L.
Chicago	Woynovitch, Steve G.
Chicago	Zaklikiewicz, Justin S.
Chicago	Ziherle, Adolph J.
Cicero	Andel, George
Cicero	Mulholland, Robert T.
Cicero	Smejkal, Harry J.
Coal City	Venzara, Miles R.
Danville	Favorite, James F.
Dixon	Evans, Robert H.
Dixon	Moss, Grover C.
Dixon	Worsley, Raymond E.
Du Quoin	Benton, Charles M.
Dwight	Graham, Stanley E.
Effingham	Kincaid, Lindell O.
Elgin	Salisbury, Frederick W.
Elmwood Park	Walters, Everett G.
El Paso	Haas, Vernon J.
Eureka	Foster, Allen H.
Evanston	Law, David B.
Evanston	McGuire, John C., Jr.
Evanston	Muchow, Ralph W.
Evanston	Richards, Stanleigh B.

Forest Park	Wojahn, William T.
Greenville	McCracken, William L.
Harvey	Leib, Henry H.
Havana	Lyon, Arthur E.
Highland Park	Blume, Marshall E.
Homer	McVicar, Donald S.
Jacksonville	Angel, Francis A.
Joliet	Clement, Arthur V.
Joliet	Devine, John J.
Joliet	Farrell, Everett J.
Joliet	Green, Paul A.
La Salle	Radliff, Charles E.
Macomb	Smith, Richard H.
Madison	Cohan, Henry P.
Marion	Hudgens, Robert L.
Mattoon	Edmiston, Carroll
Mattoon	Glenn, James M.
Maywood	Alles, George
Maywood	Moffett, Robert L.
Maywood	Schneider, Fred
Maywood	Swift, Lionel V.
Mendota	Hopkins, Homer W.
Moline	Nelson, James A. S.
Moline	Streed, Warren R.
Monmouth	Elder, Paul W.
New Athens	Schmelzel, Washington G.
Normal	Wettaw, John N.
Oak Park	Brundage, Edwin A.
Oak Park	Etu, Lawrence A.
Oak Park	Shaffer, William D.
Oak Park	Spence, John M.
Oak Park	Wirth, Robert W.
Onarga	Templeton, William R.
Peoria	Burke, Russell J.
Rantoul	Van Zant, Frank N.
River Forest	Vollertsen, Arthur H.
Riverside	Kunka, Stephen T.
Riverside	Slaby, Irwin C.
Riverside	Pikas, Clarence A.
Robinson	Seigel, Herbert
Rockford	Elstad, Arthur C.
Rockford	Klingman, Hyman
Rock Island	Bennett, Richard E.
St. Louis	Litsey, Hubert W.
Silvis	Johnson, Kenneth G.
Taylorville	Helm, Arthur E.
Teutopolis	Weber, Frank L.
Trenton	Brefeld, Gervais L.
Washington	Kinsinger, Wayne J.
Waterman	Herrick, Howard R.
Waukegan	Schmidhofer, George A.
Wilmette	Toline, Clarence A.
Zion	Boyd, Leburn O.

Indiana

Akron	Ertzinger, George L.
Attica	Crane, Lawrence W.
Auburn	Moon, Donald H.
Bloomington	Smith, Roscoe R.
Brownstown	Ball, Charles L.
Columbus	Frohman, Howard G.
Connersville	Baltzell, Fay B.
Dillsboro	Cain, William R.
Edwardsport	Koenig, Harold H.
Evansville	Damm, Willard H.
Evansville	Weiss, Louis R.
Ferdinand	Brackman, Marinus H.
Ft. Wayne	Livingston, Wilson A.
Frankfort	Triece, Paul F.
Fremont	Chapin, Ned R.
Gary	Gregoline, Leonard J.
Gary	Gutowski, Florian J.
Gary	McCready, Cloyd E.
Gary	Watts, Elmer E.
Goshen	Riddle, Robert H.
Goshen	Yoder, Albert C., Jr.
Greenfield	Stock, Darrell A.
Indianapolis	Borman, William
Indianapolis	Burris, Harrison L.
Indianapolis	Commiskey, Leo V.
Indianapolis	Compton, Lewis F.
Indianapolis	Durkee, Eugene W.
Indianapolis	Gregg, Charles R.
Indianapolis	Johnston, John F.
Indianapolis	Kiley, Gerald G.
Indianapolis	Kornblum, Henry D.
Indianapolis	McClelland, William P.
Indianapolis	McCullough, John
Indianapolis	Riddell, Thomas F.
Indianapolis	Schwartz, Pearlie A.
Indianapolis	Smith, Richard G.
Jasper	Gosman, Robert F.
Jasper	Welp, Dennis A.
Kosciuske	Stout, Eldred W.
Lafayette	Hall, Yelverton B.
Lafayette	Massey, George F.
Lafayette	Thomas, Thomas S.
Leopold	Marcilliat, Adolph E.
Linton	Welch, Frank C.
Logansport	Gorsline, John W.
Mishawaka	Davis, James R.
Mishawaka	Wright, Joe D.
Muncie	Baldwin, Fred
Peru	Russell, Albert M.
Putnam City	Puckett, John P.
Royal Center	Hinshaw, John A.
South Bend	Bailey, Lewis R.
South Bend	Singler, John M.
South Bend	Sobecki, Raymond C.
South Bend	Vance, Samuel L.
Terre Haute	Ping, Ronald S.
Warsaw	Shipley, Walter W.
Winslow	Mercker, Albert D.

Iowa

Akron	Kessler, Ardan J.
Alta	Hogan, Everett C.
Ames	Swann, Donald M.
Anthon	Nielsen, Owen H.
Atlantic	Lantis, James L.
Atlantic	Weir, Richard B.
Bancroft	Kierscht, Charles N.
Bellevue	Kegler, August G.
Bellevue	Sunleaf, Arthur W.
Burlington	Buescher, Rudolph H.
Burlington	Grogan, Eugene D.
Burlington	Samuelson, Norman R.
Carroll	Mayr, Rudy F.
Carroll	Westendorf, Louis B.
Casey	Griffith, Robert C.
Cedar Rapids	Pitlik, Clarence C.
Cedar Rapids	Ullman, Milton
Charles City	Kuhn, Marvin M.
Clarion	Lantis, John N.
Clinton	Boardway, Clarence G.
Crystal Lake	Rabe, Richard F.
Davenport	Brady, Milo M.
Davenport	Roddewig, Ray R.

Davenport	Wienert, Raymen C.
Des Moines	Alley, Kennith J.
Des Moines	Hermann, Carl B.
Farmington	Truax, Frederick W.
Ft. Dodge	Handy, Ora A.
Ft. Dodge	Maggio, Paul J.
Gilmore City	Walters, DeWitt E.
Grand Junction	Lewis, Donald W.
Hampton	Juhl, Lee K.
Harlan	Goede, Donald J.
Hawarden	Goebel, Vincent G.
Indianola	Palmer, Milburn L.
Iowa City	Ogesen, Ever J.
Iowa City	Pelzer, John P.
Jesup	Ball, Donald L.
Knoxville	Gill, Harley E.
Lake City	Loeck, Willis H.
Lamoni	Walden, James M.
La Porte City	Lehman, Frederick B.
Leon	Scott, Clyde D.
Manilla	Soe, Albert H.
Maquoketa	Gilbert, Elmer F.
Marshalltown	Kennehan, Leo B.
Mason City	Diercks, Clinton C.
Mason City	Griswold, Robert E.
Mediapolis	Lofgren, Robert W.
Melcher	Reiter, Winfield A.
Minden	Hesly, Max G.
Muscatine	Tiecke, Richard W.
Oelwein	Davis, Thomas J.
Oelwein	Feld, John W.
Onawa	Snyder, Harry W.
Ottumwa	Kelter, Francis E.
Perry	Kelley, James E.
Prairie City	Chapman, Claude E., Jr.
Prairie City	DeHaan, Fred H.
Remsen	Walker, Leon W.
Rock Rapids	Langfeldt, Ray C.
Sibley	Raker, Kenneth P.
Sioux City	Rizk, Elmer A.
Spencer	Gruber, Maurice D.
Vinton	Woodhouse, Stanley R.
Waterloo	Benjamin, Gary B.
Waterloo	Buhr, Louis H.
Waterloo	Krantz, Seymour
Waterloo	Miller, Glenn C.
Watkins	Mayhew, Lancelot L.
Waverly	Hemingway, John B.
Zearing	Strassburg, Harry E.

Kansas

Atwood	Wolfe, Kermit A.
Baxter Springs	Brooklshire, Robert R.
Eldorado	Clayton, Clifford F.
Emporia	Patton, John C.
Garnett	Shadid, Ferris N.
Geneseo	Attwood, John K.
Hutchinson	Hofer, Paul L.
Kansas City	Crockett, Kelley E.
Kansas City	Leahy, Robert A.
Kansas City	Reitz, Wilson A.
Kansas City	Williams, Jarvis M.
Kansas City	Williams, Robert W.
La Crosse	Cavin, Eugene F.
Longford	Sollner, Anson H.
Lyndon	Smith, Lawrence R.
Oberlin	Fagerberg, William H.
Parsons	McKinney, Ellis C.
Peabody	Jacobs, John M.
Topeka	Hamilton, Richard H.
Wathena	Miller, Russell R.
Wichita	Bridwell, Robert K.
Wichita	Hatfield, Rensleir R.
Wichita	Thomas, Glenn A.
Wichita	Tuttle, Victor A.

Kentucky

Ashland	Lipsitz, Bernard
Ashland	Stapf, William C., Jr.
Ashland	Williams, Harold N.
Bowling Green	Gerard, Paul E.
Bowling Green	Grider, Charles P.
Campbellsville	Conover, James R.
Campbellsville	Sanders, Richard A.
Clarkson	Higdon, William D.
Covington	Schuler, Thomas H.
Cynthiana	Botts, George M.
Danville	Huffman, Morris E.
Danville	Sanders, William H.
Erlanger	Schilling, Vincent H.
Frankfort	Barr, Vincent A.
Glasgow	Mayfield, Lynn B.
Grayson	Wassum, Robert A.
Hardburly	Gingles, George M.
Hartford	Barrass, Edward J.
Hazard	Wheeler, Maurice A.
Hopkinsville	Beazley, Hugh C.
Irvine	Comley, Bill H.
Irvington	Hannett, Hildreth A.
Lancaster	Rose, James L.
Louisville	Bentley, Albert N.
Louisville	Davis, William G.
Louisville	Kennedy, Orville A.
Louisville	Seay, Thomas B.
Ludlow	Rouse, Virgil L.
Monticello	Shearer, John L.
Owensboro	Wilson, O. Harlan
Paducah	Stamper, Elbridge G., Jr.
Paris	Shipp, James P.
Pikeville	Johnson, James K.
Pineville	Shelburne, William J.
Pleasureville	Wood, George T.
Shively	Schmitt, Robert J.
Tompkinsville	Bryant, Earl R.
Webster	Lyddan, Pat H.

Louisiana

Abbeville	Eleazar, Leon J., Jr.
Abbeville	Eleazer, Eugene L.
Alexandria	Smith, Clayton H.
Algiers	Bodenger, Fred
Bastrop	Reitzell, Vergil H.
Baton Rouge	Crifasi, Rosario S.
Bernice	Laurence, Miller W., Jr.
Compti	Wimberly, William K.
Convent	Himel, Carl H.
Cottonport	Perret, Sterling F.
Donaldsonville	Matassa, Charles A.
Houma	Ellender, Henry T.
Jackson	Bowden, Lemuel H.
Lake Charles	Carline, William R.
Metairie Ridge	Holten, Thomas G.
Monroe	Buie, Neil D.
Monroe	Collins, Sodus A.
Monroe	Henry, James G.
Morse	Landry, Edmund C.
Natchitoches	Aguilera, Henry J.
New Orleans	Albano, Peter A.

New Orleans	Asprodites, Nicholas T.
New Orleans	Bourgeois, Sylvester J., Jr.
New Orleans	Burvant, Edward P.
New Orleans	Epstein, William C.
New Orleans	Fodiman, Harry E.
New Orleans	Johnson, Gerard T.
New Orleans	Lazarus, Wilbur A.
New Orleans	Levata, Anthony N.
New Orleans	Locantro, John
New Orleans	Mills, Warren F.
New Orleans	Rosen, Isidore J.
New Orleans	Salatich, Peter B., Jr.
New Orleans	Schiro, John P.
New Orleans	Suarez, Armando R.
Oak Grove	Couch, Edward G.
Opelousas	Couvillon, Thomas N.
Shreveport	Fowler, Sanders, Jr.
Shreveport	Lemoine, Frank A.
Sunset	Sibille, Howard E.
Ville Platte	Fontenot, James N.
Winnfield	McClane, Jesse S.

Maine

Bangor	Kimball, Charles E., Jr.
Bangor	Kominsky, Howard L.
Bangor	Small, Clarence A.
Biddeford	Anton, Alexander
Lewiston	Halperin, Myer M.
Norway	Hanscom, Oscar E.
Portland	Hirshon, Selvin
Presque Isle	Seeley, Elwood W.

Maryland

Baltimore	Block, Philip L.
Baltimore	Cullen, Edward B.
Baltimore	Gilden, Paul
Baltimore	Levin, David A.
Baltimore	Maier, Frederick S.
Baltimore	Miller, Max
Baltimore	Pugh, Gordon S.
Baltimore	Rodgers, Clarence J.
Baltimore	Theodore, Raymond M.
Baltimore	Thomas, Nelson J.
Baltimore	Weisengreen, Herman H.
Baltimore	Woodland, John C.
Baltimore	Woolfson, Albert
Bethesda	Comer, Thomas P.
Cumberland	Beamer, Charles S.
Edgewood	Myers, Norman F.
Green Meadows	Floria, Bruno G.
Hagerstown	Baker, Myron S.

Massachusetts

Adams	Bobowiec, Ernest J.
Andover	Brown, John C.
Athol	Lapen, Walter
Bedford	Kisner, Jeremiah
Bedford	Teague, Horace S.
Boston	Cohen, Howard S.
Boston	Corbiere, Ptolemy M.
Boston	Shubow, Abraham S.
Boston	Shure, Alvin A.
Boston	Simmons, Sydney
Bridgewater	Kempster, George A.
Brighton	Strauss, Herman M.
Brookline	Fogel, Bertram
Brookline	Kadison, Charles G.
Cambridge	Schuman, Elihu L.
Cohasset	Fiocca, Joseph V.
Dorchester	Cohen, Maynard E.
Dorchester	Cohen, Melvin I.
Dorchester	Goldman, Abraham B.
Dorchester	Kanovitz, Irving
Dorchester	Kaufman, William V.
Dorchester	Lax, Martin
Dorchester	Ott, Herbert J.
Everett	Gerety, John E.
Gardner	Baltrucki, Edmund V.
Gardner	Ziegler, Morris
Holyoke	Basamania, Walter P.
Hyannis	Thompson, Thomas G.
Indian Orchard	Ziemian, Stefan S.
Lawrence	Judson, Victor J.
Lawrence	Placido, Francis D.
Leicester	Graham, Everett N.
Lowell	French, Vernon R.
Lynn	Schechtman, David H.
Malden	Brown, Bruce E.
Mattapan	Barron, Joseph B.
Mattapan	Snyder, Morris L.
New Bedford	Brault, Clement E.
Newton	Bennison, David R.
Northampton	Ross, Abel.
Pittsfield	Belland, Edward C.
Pittsfield	Geller, Morris
Quincy	Alter, Abraham H.
Roxbury	Brower, Thomas
Roxbury	Novick, Alfred L.
Salem	Freedman, Isaac
Somerville	Campelia, Charles M.
Somerville	Pelletier, George E.
Southbridge	Racicot, Ralph R.
Southbridge	Skaza, Mitchell S.
Springfield	Bryant, Warren
Springfield	Dale, William G.
Springfield	Tillman, Jacob
Suffolk	Christou, Christo S.
Waltham	Millen, Howard E.
Waltham	Richelson, Harry
Waltham	Rogell, Bernard C.
Wellesley	Virkler, Stanley B.
Weymouth	Lilla, Louis
Whitinsville	Cooper, Peter S.
Worcester	Amiot, William F.
Worcester	Jacques, Louis U.
Wrentham	Wardner, Joseph E., Jr.

Michigan

Alma	Davies, Robert B.
Ann Arbor	Burd, William W.
Ann Arbor	Sanjuruo, Rafael R.
Ann Arbor	Schaller, William H. G.
Ann Arbor	Sferra, George W.
Bad Axe	Jackson, William D.
Bay City	Anderson, William J.
Boyne City	Krieghoff, Corneilius F.
Cedarville	Rudd, Edward, Jr.
Detroit	Andries, John E.
Detroit	August, Alvin
Detroit	Aumann, Frederick G.
Detroit	Bailey, Maynard R.
Detroit	Barak, Morrey A.
Detroit	Baumgartner, William C.
Detroit	Beck, Gilbert F.
Detroit	Botwin, Morris L.

Detroit	Dederichs, Robert H.
Detroit	Diskin, Ben R.
Detroit	Fairbanks, Harold C.
Detroit	Feldman, Charles S.
Detroit	Gantz, George
Detroit	Haskett, Edward K.
Detroit	Hershon, Irving J.
Detroit	Higgins, Kenneth F.
Detroit	Hladun, Walter A.
Detroit	Kaplan, Albert
Detroit	Knight, Henry E.
Detroit	Kost, David H.
Detroit	Lipton, Leo
Detroit	Metz, Herbert H.
Detroit	Moss, Max S.
Detroit	Parker, Max
Detroit	Pollard, Ray
Detroit	Reynolds, Paul L.
Detroit	Rovin, George S.
Detroit	Schlaff, Isaac
Detroit	Shulman, Albert B.
Detroit	Stefan, Louis J.
Detroit	Streit, William F.
Detroit	Stuckey, James E.
Detroit	Stulberg, Samuel
Detroit	Weber, Albert D.
East Lansing	Hornberger, Harry J.
Edwardsburg	Harrison, James W.
Flint	Freeman, Albert R.
Flint	Frutiger, Raymond E.
Flint	Joseph, Michael C .
Flint	Sorscher, Samuel
Flint	Taylor, Maurice
Ft. Huron	Gillett, Lawrence F.
Gobles	Ramsdell, Willard C.
Grand Rapids	Steele, Maurice E.
Grand Rapids	Sullivan, Henry C.
Grand Rapids	Vandenberg, Gerald
Grand Rapids	Verwys, John H.
Grosse Pointe	Heron, David F.
Hamtramck	McMillar, James B.
Highland Park	Caldwell, Richard L.
Iron River	Baumgartner, David W.
Jackson	Bowler, Lawrence D.
Kalamazoo	Baker, Roderick W.
Kalamazoo	Rothlisberger, Paul M.
Kalamazoo	Shook, Kenneth K.
Lansing	Carr, Stuart P.
Lansing	Leary, Michael W.
Lansing	Swanton, Stuart J.
Muskegon	Kemink, Claude J.
Niles	Shugars, Clifford E.
Pigeon	Haist, Willard P.
Pontiac	Gordon, Irving E.
Pontiac	Schulz, Wesson E.
Rogers City	Boyce, Roswell G.
Royal Oak	Frantz, Harry L.
Saginaw	Chmiel, Walter
St. Joseph	Johnson, Clell K.
Standish	Kucera, John G.
Three Rivers	Keyes, Robert S.
Watervliet	Willmeng, Lumon E.
Wyandotte	Frostic, Andrew A.
Yale	Clarke, Thomas C.

Minnesota

Campbell	Severn, Kenneth S.
Chokio	Robertshaw, Charles F.
Dassel	Norden, Lowell D.
Detroit Lakes	Olson, Milton C.
Duluth	Carlson, Theodore O.
Elk River	Johnson, Walter J.
Ellsworth	Bofenkamp, Fabian T.
Eveleth	Stein, Sam M.
Fairmont	Anderson, Arthur E.
Hibbing	Greaton, Dean L.
Hibbing	Jokela, Wiltho F.
Internat'l Falls	Milroy, Earl R.
Internat'l Falls	Thompson, Erle C.
Janesville	Gayer, Frank A.
Lamberton	Conner, Donald E.
Little Falls	Altendorf, Edward L.
Little Falls	Kotula, Robert J.
Lone Prairie	Klick, Florian J.
Madison	Sletten, Melvin O.
Mahnomen	Hoghaug, Maurice A.
Minneapolis	Carson, Knute P., Jr.
Minneapolis	Fletcher, Robert W.
Minneapolis	Gauvin, John J.
Minneapolis	Griffith, William D.
Minneapolis	Herring, Idar J.
Minneapolis	Johnsrud, Donald L.
Minneapolis	Jonassen, George E.
Minneapolis	Kravig, Halfdan L.
Minneapolis	Lott, Max J.
Minneapolis	Nethery, Ronald J.
Minneapolis	Payne, Ralph S.
Minneapolis	Peterson, Edwin A.
Minneapolis	Scholtis, Anthony J.
Minneapolis	Sigford, Kenneth J.
Minneapolis	Skoberg, Eldred L.
Minneapolis	Tofte, Hjalmar T.
Minneapolis	Whinnery, Raymond S.
Montgomery	Kucera, Henry
Morris	Muller, Jan J.
Ogilvie	Childress, Lloyd E.
Owatonna	Schock, Kermit M.
Pelican Rapids	Borg, Herbert R.
Pine Island	Thorson, Maxwell
Pipestone	Argetsinger, Warren K.
St. Cloud	Kirwin, Ralph J.
St. Cloud	Pattison, Patrick B.
St. Cloud	Wood, Clifford C.
St. Paul	Bradshaw, Ralph R.
St. Paul	Calph, Edward J.
St. Paul	Davidson, Loris E.
St. Paul	Ekstrom, Maurice F.
St. Paul	Erickson, Carl W.
St. Paul	Fifield, Frank T.
St. Paul	Haedge, Carl
St. Paul	Hurvitz, Archie
St. Paul	Kirch, Albert M.
St. Paul	Swanson, Evert T.
Slayton	Keller, Paul V.
South Anoka	Kline, Franklin J.
Stillwater	Bunce, Walter E.
Stillwater	Webster, Douglas M.
Thief River Falls	Hillard, Jerome G.
Tracy	Derrick, Robert C.
Waterville	Rieke, Lowell L.
Warren	Bro, Bertram F.
Watkins	Lang, Norbert S.
Wheaton	Bard, Miles R.
Winnebago	Greiner, George V.
Worthington	Ponterio, Arthur E.

Mississippi

Biloxi	Roberts, Thomas N.
Booneville	Miller, Ebbie T.
Columbus	Stepp, William H.
Gulfport	Walker, Chester A., Jr.
Hattiesburg	Williams, Max B.
Jackson	Reynolds, George M.
Louisville	Hindman, Silas H.
McComb	Neely, Buford B.
Magee	Sauls, Cecil B.
Natchez	Stowers, Robert C.
Noxapater	Kemp, Albert C.

Missouri

Anderson	Maness, Harvey L.
Boonville	Gowan, Garrett T.
Carrollton	Trefz, John C.
Cassville	Salyer, John W.
Clayton	Goldberg, Myron, Jr.
Dunnegan	Thompson, Harold E.
Eldon	Almquist, Carl K.
Excelsior Springs	Baird, Bill K.
Fenton	Meyer, Herbert C.
Genevieve	Rehm, Walter L.
Hannibal	Dugmore, John B.
Hannibal	Gillooly, Denis F.
Kansas City	Arrasmith, Marlin E.
Kansas City	Bumstead, Gilbert W.
Kansas City	Conway, Sam L.
Kansas City	Daugherty, Thomas S.
Kansas City	DeWees, William H.
Kansas City	Gard, Frank C.
Kansas City	Gillgannon, Patrick J.
Kansas City	Hicks, Bern V.
Kansas City	Lindsey, Charles F.
Kansas City	Maienschein, Eugene H.
Kansas City	Newton, Warren H.
Kansas City	Newton, William J.
Kansas City	Reding, Willard P.
Kansas City	Schull, James N.
Kansas City	Wright, Richard C.
Kansas City	Wright, Wilburn E.
Kennett	Goddard, Harry E.
Kirkwood	Guidry, Jules P.
La Belle	Heyburn, Peter J.
Lathrop	Joy, George L.
Lebanon	Thomas, Coyl B.
Lee's Summit	Flanagan, James B.
Lemay	Bockrath, Harry P., Jr.
Mexico	Osborn, William R.
Mexico	Williams, Lester C.
Moberly	Miller, William J., Jr.
Monett	Davis, William C.
Mt. Vernon	Marshall, Hugh E.
Normandy	Matthews, Walter L. S.
Plattsburg	Bowers, Michael K.
Poplar Bluff	Stokely, Clayton E.
Richmond Hts.	Hartman, John H.
Rockport	Templeton, Joseph E.
St. Joseph	Craig, Charles W. G.
St. Joseph	Vallo, Sebastian J.
St. Louis	Benning, Carl J.
St. Louis	Bollwerk, Emil H.
St. Louis	Britt, William S.
St. Louis	Coleman, Lawrence A.
St. Louis	Davenport, Raymond L.
St. Louis	D'Oench, Charles G.
St. Louis	Etzkorn, John G.
St. Louis	Gelman, Abraham
St. Louis	Giese, Henry W.
St. Louis	Grodzki, Walter J., Jr.
St. Louis	Hahn, Henry E.
St. Louis	Harris, Lloyd H.
St. Louis	Hermann, Otto C., Jr.
St. Louis	Hotfelder, Eugene A.
St. Louis	Italiano, Joseph R.
St. Louis	Knox, Thomas E.
St. Louis	Krause, Harry M.
St. Louis	Lambrechts, Emil V.
St. Louis	Lattner, Carl W.
St. Louis	Madden, Jerome
St. Louis	Metcalfe, James T.
St. Louis	Mothershead, Robert A.
St. Louis	Nakata, Edward K.
St. Louis	Nofles, Laurence H.
St. Louis	O'Brien, Lionel C.
St. Louis	Sevem, Arthur T.
St. Louis	Smith, Russell G.
St. Louis	Styblo, Jerry J.
St. Louis	Walter, Julius, Jr.
St. Louis	Yonover, Nathan
Salem	Felt, Charles W.
Sheldon	Jones, Philip M.
Springfield	Priess, Harry C.
Tarkio	Jones, Onas L.
Tipton	Morton, Buell
University City	Butts, William H.
University City	Cole, Ronald C.
University City	Shaul, William P.
Van Buren	Buckthorpe, Tom C.
Warrensburg	Cayton, Alfred M.
Wentzville	Keller, Leland H.

Montana

Cut Bank	Jones, Rutherford B.
Great Falls	Backowske, Michael L.
Great Falls	Dalve, Franklin E.
Great Falls	Kluge, Bruno E.
Great Falls	Terrill, Arthur J.
Helena	Doering, Gordon L.
Medicine Lake	French, Willard F.
Sidney	Beagle, Gordon A.

Nebraska

Adams	Waggener, Donald T.
Central City	Greving, Henry F.
Central City	McAleer, Francis P.
Chambers	Eason, Claire M.
Gothenburg	Anderson, Ernest O.
Lexington	Jacobson, Roy C.
Lincoln	Bennett, John R.
Lincoln	Holland, Kenneth E.
Lincoln	Oppenheimer, Otto P.
Lincoln	Weber, Harry E.
Lincoln	Yungblut, Donald C.
Minden	Strand, Collins W.
Nebraska City	Chapin, James E.
Nebraska City	Souders, Allen E.
North Platte	Miller, Cecil H.
Odell	Reid, Charles A.
Omaha	Dunn, Arlo M.
Omaha	McKee, Don T.
Omaha	Misner, LeRoy R.
Omaha	Sutera, Salvatore S.

Omaha	Triba, Edwin T.
Omaha	Witter, David M.
Orchard	Fletcher, Archibald C.
Plattsmouth	Ryan, William V.
Scottsbluff	Harshman, Richard E.
Scottsbluff	Killian, James F.
Tecumseh	Campbell, Clare P.

Nevada

Boulder City	Ahlstrom, Jack E.

New Hampshire

Lebanon	Sawyer, Bertram H.
Manchester	Frost, Robinson C.
Nashua	Bartis, Stanley J.

New Jersey

Arlington	Joule, William R.
Atlantic City	Gorodetzer, Albert J.
Atlantic City	Serben, Reuben
Atlantic City	Stein, Herman
Bayonne	Pollak, Robert
Bayonne	Steinert, Gerard
Bloomfield	Stier, Manuel M.
Caldwell	Grace, Raymond D.
Camden	Bascove, Leonard H.
Camden	Kaplan, Joseph S.
Carteret	Greenwald, Marvin
Chatham	Warren, Edwin M.
Cliffside Park	Arbucci, John R.
Clifton	Frost, Michael
Clifton	Nies, Alexander
Elizabeth	Clark, William G.
Elizabeth	Merlo, Thomas V.
Elizabeth	Wolf, Bernard J., Jr.
Fair Lawn	Singer, Jonas J.
Freehold	Frankel, Nathan N.
Glassboro	Pearlstein, Jules P.
Gloucester	Eppleman, Herbert O.
Hackensack	MacCallum, Edward R.
Hoboken	Herman, David P.
Hoboken	Pappas, Menelaus G.
Irvington	Levine, Philip
Irvington	Lisman, Elias
Jamesburg	Goldstein, Lewis
Jersey City	Berman, Nathan P.
Jersey City	Close, William K.
Jersey City	Connell, Robert E.
Jersey City	Edwards, Thomas W.
Jersey City	Grochow, Samuel
Jersey City	Kaye, Harold H.
Jersey City	Mancari, Anthony R.
Jersey City	Newman, Arthur O.
Jersey City	Pignataro, Alfred J.
Jersey City	Piskorski, Val B.
Jersey City	Romano, Leo A.
Jersey City	Shapiro, Philip N.
Jersey City	Sheppard, Bernard J.
Linden	Steinfeld, Irving
Long Branch	Colby, Rubin
Millville	Abrams, Dailey B.
Montclair	White, Paul L.
Morristown	Gindes, Jack J.
Newark	Belford, Julius E.
Newark	Cohen, Samuel L.
Newark	Feinstein, William
Newark	Finkelstein, Louis B.
Newark	Finn, Alfred E.
Newark	Gladstone, Saul
Newark	Goldberg, William M.
Newark	Graber, Irving S.
Newark	Grubin, Bernard G.
Newark	Krouk, Herbert C.
Newark	Lapow, Albert
Newark	Lessin, Hyman
Newark	Marchesani, Rosario P.
Newark	Oliner, Albert A.
Newark	Pedinoff, Philip R.
Newark	Rubin, Norman H.
Newark	Simon, Ben Seymour
Newark	Teifeld, Samuel H.
North Bergen	Jerrow, Herman M.
North Bergen	Meany, John J. R.
North Bergen	Schiff, Lester
North Bergen	Steinberg, Richard B.
North Bergen	Turok, Seymour
Nutley	Liloia, Michael P.
Nutley	Liloia, Nicholas
Orange	Monica, Vincent L.
Orange	Pinsky, Leon
Orange	Urling, Wendell P.
Passaic	Dubnoff, Max
Passaic	Zion, Nathan
Paterson	Blake, Harris
Paterson	Gross, Herman L.
Paterson	Marmor, David
Paterson	Monroe, Charles E.
Paterson	Orowitz, Max I.
Paterson	Winett, Sidney R.
Paterson	Zarchin, Jules
Paulsboro	Tortella, Rocco J.
Paulsboro	Weiss, Herman H.
Penns Grove	Fried, Martin I.
Perth Amboy	Klein, Irving
Perth Amboy	Rossner, Paul D.
Plainfield	Doeringer, Clifford W.
Plainfield	Frankel, Woodrow J.
Plainfield	Hoffman, Norman E.
Pompton Lakes	Johnson, John B., Jr.
Princeton	Manser, George E., Jr.
Richmond Hill	Springer, Robert E.
Runnemede	Luisi, Lawrence
Somerville	Lawton, William E.
South Orange	Dunphey, Harvey F., Jr.
Stirling	Alpert, Abraham
Trenton	Bird, Walter H.
Trenton	Dobronte, John, Jr.
Trenton	Jammer, Harry R.
Trenton	Wacks, Benjamin
Union	Philpot, William C. C.
Union City	Ducoff, Morris M.
Union City	Kanton, Harry
Union City	Lowen, Dan D.
Vineland	Emburgia, Joseph A.
Vineland	Houck, Roland V.
Wallington	Wexler, Pinko R.
Westfield	Warnke, Frederick W.
West Orange	Shapiro, Emanuel
Woodbridge	Flannery, Michael J.

New Mexico

Albuquerque	Swanson, David T.
Carlsbad	Pearson, Thomas J.
Gallup	Benson, Reo J.
Roswell	Rose, Eugene V.

New York

Albany	Gluck, Richard
Albany	Haase, Henry J.
Albany	Harris, Robert E.
Albany	Knighton, John M.
Albany	Kupperberg, Isadore
Albany	Leary, William J. C.
Albany	Sennett, William J.
Amsterdam	Berkman, Harry A.
Amsterdam	Carbonelli, Gennaro E.
Amsterdam	Ceterski, Victor E.
Amsterdam	Lindsay, James F.
Amsterdam	Richardson, William C., Jr.
Astoria	DeRose, Joseph J.
Astoria	Rizzuti, Vincent
Baldwin	Schoen, Gerard H.
Baldwin	Wilcox, William W.
Bath	Paul, Earle E.
Bayport	Frieman, John A.
Bay Shore	Finell, Philip
Beacon	Lewis, Simon
Belle Harbor	Igoe, William J.
Binghamton	Decker, Charles A.
Binghamton	Paris, Abraham M.
Binghamton	Rooney, Thomas C.
Bound Brook	Verniero, Michael J.
Bronx	Abramson, Emanuel
Bronx	Ackerman, Morris
Bronx	Barnett, Sidney E.
Bronx	Berc, Ira L.
Bronx	Berg, Murray
Bronx	Brown, Aaron I.
Bronx	Buchbinder, Frederick M.
Bronx	Cashman, Allan H.
Bronx	Collins, Edward W.
Bronx	Daniels, Joseph
Bronx	Dash, William J.
Bronx	Falkowitz, Milton
Bronx	Feiger, Philip
Bronx	Fein, Aaron
Bronx	Feitelson, Norman
Bronx	Fliegel, Emanuel
Bronx	Frascella, John L.
Bronx	Gendler, Benjamin
Bronx	Giordano, Robert H.
Bronx	Godfried, William
Bronx	Gold, Harry
Bronx	Gottesman, Edward
Bronx	Gottlieb, Eugene
Bronx	Greenbaum, Herman
Bronx	Greenberg, Herbert A.
Bronx	Grosky, Daniel
Bronx	Gutterman, Milton
Bronx	Harris, Herman S.
Bronx	Hoffman, Norman
Bronx	Hoos, Herman H.
Bronx	Janpol, Everett
Bronx	Karp, Samuel
Bronx	Keefe, John E.
Bronx	Kent, Benjamin
Bronx	Kessler, Benjamin
Bronx	Klein, Sidney A.
Bronx	Laks, Alfred M.
Bronx	Langer, William
Bronx	Lazarus, Abraham H.
Bronx	Leegant, Harold A.
Bronx	Levites, Benjamin R.
Bronx	Lind, John I.
Bronx	Lipton, Meyer M.
Bronx	Malloy, Edward A.
Bronx	Nicosia, Salvatore A.
Bronx	Pellegrino, Archie P.
Bronx	Pepper, Bernhard
Bronx	Perlmutter, Jules
Bronx	Pressman, Henry S.
Bronx	Priver, Milton P.
Bronx	Radogna, Joseph P.
Bronx	Rose, William
Bronx	Ruderman, Sidney L.
Bronx	Schapiro, Max M.
Bronx	Selinger, Leon
Bronx	Shapiro, Solomon S.
Bronx	Silverstein, Abraham
Bronx	Snider, Louis
Bronx	Sternig, Martin
Bronx	Swanson, Chester H.
Bronx	Tallent, William J.
Bronx	Warren, John
Bronx	Winter, Barnet
Bronx	Yuliano, Eugene M.
Bronx	Zimet, Samuel
Brooklyn	Addes, Edward E.
Brooklyn	Adisman, Irwin K.
Brooklyn	Alexander, Mortimer A.
Brooklyn	Anderson, William H.
Brooklyn	Arnold, Milton
Brooklyn	Aronoff, Samuel
Brooklyn	Asen, Paul
Brooklyn	Ayervais, Charles L.
Brooklyn	Babus, Leon
Brooklyn	Baker, Bernard
Brooklyn	Bassin, Harry
Brooklyn	Berkeley, Irving H.
Brooklyn	Berkelhammer, Meyer F.
Brooklyn	Bernstein, Sidney
Brooklyn	Blum, Morris M.
Brooklyn	Brandt, Sidney
Brooklyn	Braverman, Samuel D.
Brooklyn	Browman, Herman
Brooklyn	Cannon, Vincent X.
Brooklyn	Cantor, Herman
Brooklyn	Cerrato, Emil
Brooklyn	Chernack, Arnold J.
Brooklyn	Coen, Murray R.
Brooklyn	Cohen, Daniel
Brooklyn	Corrado, Louis A.
Brooklyn	DeGiovanni, Anthony A.
Brooklyn	Dembroff, William
Brooklyn	Deutsch, Max
Brooklyn	DiGangi, Louis A.
Brooklyn	Diner, Morris D.
Brooklyn	Drucker, Albert S.
Brooklyn	Eilenberg, Morris
Brooklyn	Eisenberg, William
Brooklyn	Eisenstein, David
Brooklyn	Ellentuck, Irwin
Brooklyn	Epstein, Abraham N.
Brooklyn	Epstein, Alexander
Brooklyn	Epstein, George B.
Brooklyn	Erlitz, Stanley
Brooklyn	Fand, Max
Brooklyn	Feinberg, Solomon
Brooklyn	Feinstein, Irvin
Brooklyn	Feldman, Morris K.
Brooklyn	Ferrara, Jerome J.
Brooklyn	Ferrara, Joseph R.

Brooklyn Fischetti, Nicholas M., Jr.
Brooklyn Fishelman, Alvin
Brooklyn Fishman, William
Brooklyn Fiske, Leroy R.
Brooklyn Fleisher, George J.
Brooklyn Fleisher, Sol
Brooklyn Freed, Leon M.
Brooklyn Friedman, Israel S.
Brooklyn Friedman, Samuel
Brooklyn Gerard, Irving V.
Brooklyn Glasser, Victor
Brooklyn Glickman, Mortimer
Brooklyn Goldfarb, Saul K.
Brooklyn Goldhush, Alvin A.
Brooklyn Goldman, Melvin E.
Brooklyn Goldschmidt, Jules W.
Brooklyn Goldsmith, Louis E.
Brooklyn Goodman, David S.
Brooklyn Gordon, Ruben
Brooklyn Grapel, Edward
Brooklyn Greene, Laurence
Brooklyn Gross, Henry
Brooklyn Held, Lawrence
Brooklyn Hersch, Sidney R.
Brooklyn Horowitz, Elias
Brooklyn Horwitz, Seymour B.
Brooklyn Howard, Seymour J.
Brooklyn Hurwitz, Irving A.
Brooklyn Hurwitz, Sidney I.
Brooklyn Jablons, Abraham H.
Brooklyn Jacobs, Harold D.
Brooklyn Joffe, Seymour L.
Brooklyn Josephson, George B.
Brooklyn Kahm, Morris
Brooklyn Kanterman, Edgar A.
Brooklyn Kaplan, Bernard J.
Brooklyn Kaplan, Herbert L.
Brooklyn Kaplan, Rubin M.
Brooklyn Kaplan, Stanley L.
Brooklyn Kavaler, Leon
Brooklyn Kelly, Francis A.
Brooklyn Kelly, Robert L.
Brooklyn Kelman, Morris
Brooklyn Kent, Oscar A.
Brooklyn Kessler, Joseph
Brooklyn Korris, David L.
Brooklyn Kramer, Benjamin
Brooklyn Kramer, William D.
Brooklyn Kriss, Morris
Brooklyn Krugman, Abraham A.
Brooklyn Kye, George L.
Brooklyn Lang, David
Brooklyn Lantner, Henry W.
Brooklyn LaRusso, Joseph J.
Brooklyn Lazarus, Lawrence D.
Brooklyn Leff, Alexander
Brooklyn Levine, Julius
Brooklyn Levine, Murray
Brooklyn Levitt, Oscar L.
Brooklyn Levy, Frederick
Brooklyn Levy, Henry P.
Brooklyn Lieberman, Leon R.
Brooklyn Lutz, Richard J.
Brooklyn Mackler, Irving J.
Brooklyn McLaren, Frank J., Jr.
Brooklyn Mandell, David L.
Brooklyn Mangel, William
Brooklyn Mangi, Richard C.
Brooklyn Markow, Edward J.
Brooklyn Markson, Lloyd H.
Brooklyn Massoff, Nathan
Brooklyn Matloff, Simon
Brooklyn Meindel, John
Brooklyn Miller, Morris
Brooklyn Miller, Sidney L.
Brooklyn Montalbano, Leonard V.
Brooklyn Monturean, Harry B.
Brooklyn Myles, Emuel
Brooklyn Nadelson, Harold A.
Brooklyn Nigberg, Joseph
Brooklyn Noble, Hyman S.
Brooklyn Olsson, Arthur E.
Brooklyn Opperman, Albert M.
Brooklyn Paris, Samuel
Brooklyn Pauker, Edward
Brooklyn Peri, Rosario J.
Brooklyn Pernick, Harry C.
Brooklyn Peyser, Harry
Brooklyn Platt, Earl
Brooklyn Price, Howard A.
Brooklyn Rassi, Fred K.
Brooklyn Reiss, Samuel
Brooklyn Rodbart, Sol
Brooklyn Rosanelli, Simeone
Brooklyn Rothenberg, Myron S.
Brooklyn Rothfeld, Nathan
Brooklyn Rothman, Samuel S.
Brooklyn Rothstein, Leo E.
Brooklyn Ruder, Robert
Brooklyn Sabin, Harold
Brooklyn Samuels, Daniel
Brooklyn Sanders, Maurice G.
Brooklyn Sandler, Henry C.
Brooklyn Scarpone, Vincent J.
Brooklyn Schachter, William
Brooklyn Schaffer, Julius
Brooklyn Schatz, Abraham M.
Brooklyn Schiffer, David
Brooklyn Schneider, Samuel
Brooklyn Schole, Murray L.
Brooklyn Schwartz, David
Brooklyn Sconzo, Thomas C.
Brooklyn Seiden, Felix A.
Brooklyn Shapiro, Kermit
Brooklyn Silverman, Sidney S.
Brooklyn Simms, Louis M.
Brooklyn Sloan, Harry
Brooklyn Solomon, Lester E.
Brooklyn Spanier, Harold B.
Brooklyn Spiro, Stanley R.
Brooklyn Steinberg, Jerome
Brooklyn Stemple, Max David
Brooklyn Sterinbach, Robert
Brooklyn Stiber, Seymour
Brooklyn Tabachnikoff, Morris
Brooklyn Tansman, Henry
Brooklyn Telsch, Victor I.
Brooklyn Trattner, Henry
Brooklyn Vogel, Charles
Brooklyn Warren, John E.
Brooklyn Waxman, Milton
Brooklyn Wehmann, Henry G.
Brooklyn Weinstein, Lester
Brooklyn Weisbrod, Lewis
Brooklyn Weissman, Hyman
Brooklyn Weitman, Warren P.
Brooklyn Werboff, Maxwell
Brooklyn Wolff, Roy I.

Brooklyn	Wortman, Nathan
Brooklyn	Yokel, Seymour L.
Brooklyn	Zuckerman, William J.
Brooklyn	Zwerling, Samuel
Buffalo	Audin, Anthony L.
Buffalo	Bron, Milton M.
Buffalo	Cudney, Harry J.
Buffalo	Cushing, Charles G.
Buffalo	Erenstoft, Samuel
Buffalo	Fried, Alfred P.
Buffalo	Goll, Marvin
Buffalo	Jendrasiak, Casimir J.
Buffalo	Jung, Emil P., Jr.
Buffalo	Lyons, Charles J.
Buffalo	Patti, Alfred J.
Buffalo	Schweichler, Louis H., Jr.
Buffalo	Stadlinger, Henry E.
Buffalo	Tufo, William J.
Buffalo	Vogel, Irving S.
Canastota	Tornatore, Charles J.
Canton	Stein, Louis
Catskill	Ersken, Bernard D.
Cedarhurst	Feldman, Louis
Clinton	Robinson, Walter P.
Cobleskill	Tator, Floyd L.
College Point	Gardner, Martin B.
Corona	Perlmutter, Matthew N.
Cortland	Glezen, Marcena B.
Coxsackie	Lambertson, William A.
Croton Falls	Bowes, Martin R.
Croton-on-Hudson	Klein, Jack
Depew	Zak, Stanley L.
Dundee	Lane, Henry M.
Ellenville	Weinbaum, Leo C.
Elmhurst	Feldman, Bernard L.
Elmhurst	Garnett, Milton
Elmont	Cacciatore, Angelo C.
Endicott	Hudock, Stephen J.
Far Rockaway	Schneer, Jacob B.
Flushing	Gilbert, Arthur H.
Flushing	Goodman, Herbert B.
Flushing	Hollis, Alfred W.
Flushing	Horowitz, Aren
Flushing	Karlin, Sidney
Flushing	Lesk, Harold
Flushing	O'Connell, Raymond A.
Flushing	Ornstein, Joseph G.
Forest Hills	Ehrenhaus, Jesse
Forest Hills	Fedder, Herbert L.
Forest Hills	Grossman, Alfred E.
Forest Hills	Morrow, Samuel H.
Forest Hills	Rosett, Abraham C.
Forest Hills	Weiselberg, Norman
Forest Hills West	Saroff, Lester
Frankfort	Grates, Joseph J.
Fredonia	Musacchio, Elmer
Fulton	Griffith, Charles B.
Geneva	Morden, Garnet W.
Glen Cove	Lampert, Harry
Glens Falls	Yaffee, Morris
Grasmere	Takach, Michael J.
Great Neck	Feldman, Raymond
Great Neck	Fleshner, Irving A.
Great Neck	Kelly, James T.
Great Neck	Master, Edward B.
Great Neck	Superior, Daniel
Great Neck	Tropauer, Bertram J.
Hempstead	Rodin, Walter G.
Hempstead	Rosenbaum, B. Hall
Hempstead	Springsted, Archer C.
Hornell	Janello, Ralph J.
Hornell	Sullivan, James H.
Jackson Hts.	Cotsonas, George E.
Jackson Hts.	DiTolla, William J.
Jackson Hts.	Goldberg, George
Jackson Hts.	Menken, Norman
Jackson Hts.	Rivera, Damaso R.
Jamaica	Corn, Arthur M.
Jamaica	Lapin, George H.
Jamaica	Sturtevant, Robert C.
Jamestown	Germond, Robert C.
Johnstown	Ralbovsky, William A.
Kenmore	Chase, Clifford A.
Kenmore	Seifert, George N.
Kew Gardens	Wagner, Herbert
Kiamesha Lake	Gluck, Emerick
Larchmont	Burt, Wesley R.
Liberty	Goodman, Jack W.
Lockport	Roberts, Edward A.
Longbeach	Kollender, Ellis J.
Long Island	Garris, Charles
Long Island	Gevirtz, Samuel
Long Island	Heller, Nathan
Long Island	McCauley, Joseph F.
Long Island	Ratner, Julius B.
Long Island City	Harris, Paul
Long Island City	Kaplan, Meyer I.
Long Island City	Koweek, Albert
Long Island City	Stein, Morris B.
Long Lake	Jennings, Alfred G.
Lynbrook	DeNoie, Bayard J.
Lynbrook	Mulligan, William J.
Lynbrook	Nellis, Frank G.
Malone	Maguire, Kenneth R.
Malverne	Kimmel, Murray M.
Manhasset	Lee, Harry J.
Massapequa	Wit, Maurice C.
Medina	Thiel, Norman E.
Monticello	Langberg, Jacob H.
Mt. Vernon	Freeman, Louis X.
Mt. Vernon	Fritz, Herbert P.
Mt. Vernon	McCaine, Irvin L.
Mt. Vernon	Nanna, John F.
Mt. Vernon	Nelson, Bernard
Newark	Jelley, Thomas H.
Newark	Langenstein, Ferdinand J.
New Hampton	Karasoff, Louis
Newport	Howe, Gerald D.
New York	Alcabes, Seymour A.
New York	Altman, Stanley J.
New York	Baroni, Roland A.
New York	Bauer, Harold J.
New York	Beldegreen, Ernest E.
New York	Belkin, George H.
New York	Berenson, Benjamin
New York	Bergman, Sigmund
New York	Berman, Milton
New York	Bernstein, A. Edward
New York	Block, Ephraim G.
New York	Boxer, Harold

New York	Brancato, Anthony F.
New York	Brandenberg, Fernando T.
New York	Brenner, Maury
New York	Brodie, Leo
New York	Brody, Henry M.
New York	Buchin, Irving
New York	Carman, Robert C.
New York	Cohen, Meyer
New York	Collins, Lawrence
New York	Colmer, George A.
New York	Crane, Louis J.
New York	Craw, Clarence E.
New York	Culberson, Donald
New York	Curtis, John J.
New York	Davidson, Samuel M.
New York	DeMartini, Leonard A.
New York	Diamond, Irving
New York	Diamond, Lewis S.
New York	DiNapoli, Michael L.
New York	DiSanto, Antonio C.
New York	Donziger, Irving S.
New York	Drucker, Louis
New York	Entelis, Lester
New York	Ferderber, William
New York	Feuerlicht, Herbert S.
New York	Fishman, Milton
New York	Fleischman, Leon J.
New York	Franco, Rocco J.
New York	Franzone, Mario A.
New York	Friedman, Edward H.
New York	Fulton, Michael
New York	Gold, Abraham I.
New York	Gold, Theodore
New York	Goldberg, Jacob W.
New York	Goldman, Albert E.
New York	Goodman, Oscar A.
New York	Gottlieb, Jacob
New York	Grayson, Stanley
New York	Greenberg, Harold
New York	Greitzer, Arthur O.
New York	Gurland, Edward
New York	Hallarman, Alfred
New York	Halley, Rudolph S.
New York	Hamer, Albert
New York	Hickey, Eugene J.
New York	Jacobs, Meyer J.
New York	Jacobs, Solomon
New York	Jacobson, John
New York	Jaffe, Irving
New York	Kantrowitz, Murray
New York	Kaplan, George
New York	Kessler, Frederick W.
New York	Kirschenbaum, William
New York	Kittay, Irving
New York	Klein, Simon
New York	Kleinman, Jesse F.
New York	Knopf, Murray L.
New York	Koslowe, Louis
New York	Kraman, Hyman
New York	Krautheimer, Murray
New York	Krentz, Bertram
New York	Kuthy, Julius A.
New York	Leeds, Lawrence
New York	Lehmkuhl, Mark M.
New York	Leichter, Moe H.
New York	Levac, Raymond M.
New York	Leventyn, Harry G.
New York	Lewin, Arnold H.
New York	Lichtman, Samuel
New York	Lieberman, Joseph D.
New York	Lyons, Albert I.
New York	Mandelbaum, Irving T.
New York	Marcus, Leo
New York	Margulies, Charles S.
New York	Marlowe, Richard S.
New York	Martin, George H., Jr.
New York	Miller, Bernard
New York	Miller, Morris
New York	Mintz, Henry
New York	Neufeld, Herbert
New York	Orzach, Jack C.
New York	Parker, Theodore R.
New York	Pasternak, Richard
New York	Peister, Jerome
New York	Perrone, Edmond R.
New York	Petrelli, Frank G.
New York	Piner, George J.
New York	Pressman, George R.
New York	Quain, Harry
New York	Rabinow, Eugene
New York	Rachlin, Jacob L.
New York	Ragaini, Vincent E.
New York	Raucher, Frederick
New York	Reiser, Morris
New York	Renzulli, Emilio
New York	Rosenberg, Melvin
New York	Rosenblum, Benjamin W.
New York	Rosner, Norman
New York	Ross, Joshua F.
New York	Rothenberg, Isidore R.
New York	Rothschild, Eugene A.
New York	Russell, Sidney
New York	Ryan, Edward J.
New York	Sackman, Samuel F.
New York	Safian, Jack I.
New York	Schectman, Jesse
New York	Scheier, Morton H.
New York	Schoen, Joseph A.
New York	Schultz, Barney
New York	Schweitzer, Arthur A.
New York	Seplow, George W.
New York	Shepard, Alfred R.
New York	Shoham, Joseph
New York	Shulman, Marcy L.
New York	Sichelman, Jesse P.
New York	Siegel, Benjamin
New York	Sindeband, Irwin L.
New York	Sobel, Samuel
New York	Spatz, Leon D.
New York	Spiers, Robert C.
New York	Stein, Max
New York	Stelzer, Isador
New York	Stern, John P.
New York	Stone, Milton
New York	Stowe, Nathan
New York	Strickler, Martin S.
New York	Swerny, Robert
New York	Tanz, Norman P.
New York	Taschler, Joseph J.
New York	Toff, Jules W., Jr.
New York	Tokosh, John V.
New York	Tuerk, Milton
New York	Tufo, Vincent J.
New York	Unger, Alexander L.
New York	Vater, Frederick
New York	Weinerman, Harold D.
New York	Weishoff, Henry H.
New York	Wexler, Sidney J.

New York	Wolfson, Lester A.
New York	Wortmann, Stanley P.
New York	Wyner, Ashton H.
New York	Yarkow, Maurice
New York	Yellen, Jacob B.
New York	Yesgar, Louis
New York	Zeisler, David
New York	Ziering, Jesse M.
Niagara Falls	Kwapisz, Henry J.
Niagara Falls	Lagomaggiore, Rudolph E.
Niagara Falls	Suszczynski, Joseph C.
North Creek	Baroudi, Nicholas W.
No. Tonawanda	Nussbaum, George F., Jr.
Olean	Burt, Rudolph L.
Olean	Tupper, John E.
Oneida	Cleary, Edward J.
Oneida	Lyons, Alton E.
Oneonta	Smith, Donald W.
Ossining	Finkelstein, Selig
Peekskill	Abelson, Swinton
Peekskill	Hurwitz, Maurice S.
Peekskill	Poritzky, Robert H.
Portchester	Zorn, Carl J.
Port Jervis	Stein, Nathan
Port Richmond	Molnar, Ludwig S.
Poughkeepsie	Ehleider, Austin J.
Queens	Jaffe, Franklin B.
Queens Co.	Bollt, Harold
Richmond Hill	Goldstein, Irving
Richmond Hill	Harper, Victor E.
Richmond Hill	Peter, Alexander
Riverhead	Goldman, Lewis H.
Rochester	Adams, Joseph G.
Rochester	Ashton, Wesley O.
Rochester	Balonek, Felix J.
Rochester	Battaglia, Samuel R.
Rochester	Caccamise, Joseph S.
Rochester	Garfinkel, Paul C.
Rochester	Howard, Richard H.
Rochester	Mistretta, John N.
Rochester	Nowak, Henry T.
Rochester	Robinson, Alfred I.
Rochester	Rosenberg, Norman M.
Rochester	Waldman, Melvin
Rochester	Witherspoon, Charles R., Jr.
Rockville Center	Jaspin, Leon
Rockville Center	Schiller, Joseph A.
Rockville Center	Sorrentino, Jermiah G.
Rome	Marriott, Verne E.
St. Albans	Baker, Louis
St. Albans	Fass, Leo
Saratoga Springs	McGirr, Francis W.
Saratoga Springs	Serotta, Maurice
Scarsdale	Lefcourt, Jesse L.
Seneca Falls	Romeo, Angelo A.
Silver Creek	Joy, John R.
Snyder	Smith, William A.
So. Fallsburgh	Levine, Lawrence B.
Spring Valley	Berman, Alexander N.
Springville	Corsette, Elmo S.
Stapleton	Lipson, Louis
Staten Island	McGrath, Sylvester S.
Staten Island	Mandell, Sidney M.
Staten Island	Weiss, Bernard
Syracuse	Chrabasz, Sigmund W.
Syracuse	Corning, George F.
Syracuse	Roblin, Harold M.
Syracuse	Whittaker, Gaylord D.
Tarrytown	Ceccolini, Vincent
Tonawanda	Harmon, Robert E.
Troy	Binder, Harry B.
Troy	O'Connor, James G.
Troy	Smith, Robert A.
Tuckahoe	Thompson, Herbert W.
Utica	Ribyat, Julius L.
Utica	Walus, John W.
Walden	Abbott, Jules
Ward's Island	Hayes, Harry
Warsaw	Deeney, Raymond W.
Watertown	Zeitlin, Harold B.
Westbury	Zaino, Rocco M.
White Plains	Johnson, George I., Jr.
White Plains	Lampaglia, Rocco A.
White Plains	Merolla, Frank P.
White Plains	Zulch, Frederick R.
Woodhaven	Weiss, Norman
Woodside	Black, Maurice
Woodside	Schiff, Herbert L.
Yonkers	Lefrak, Felix M.
Yonkers	Rosenwasser, Milton
Yonkers	Weinberger, Irving
Yonkers	Wilson, Bernard

North Carolina

Canton	Rollins, Luther C.
Concord	Caldwell, Clell S.
Concord	Furr, Curtis E.
Durham	Edwards, Linus M., Jr.
Durham	Griffin, William K.
Durham	Ross, Norman F.
Elon College	Caddell, Fredrick S.
Enfield	Parker, Robert B.
Four Oaks	Denning, John N.
Fuquay Springs	Edwards, John R., Jr.
Greensboro	Pitlick, Jack M.
Greensboro	Pringle, Joseph R.
Hamlet	Adams, Roy G.
Hickory	Abernethy, Andrew D., Jr.
Kings Mountain	Lewis, Oliver P.
Mooresville	Hart, Samuel T.
Morganton	Falls, Ralph L.
Newton	Webster, Benjamin R.
Norwood	Parker, Clint A.
Polloksville	Hammond, William L.
Rocky Mount	Minges, Coyte R.
Winston-Salem	Yokeley, Gilbert W.
Wise	Coleman, Henry E., Jr.

North Dakota

Ashley	Cohen, Leo
Beach	Hildenbrant, Leo H.
Bismarck	Hublou, Francis J.
Bismarck	Nicola, Joseph S.
Bottineau	Toyer, James V.
Edgeley	Olson, Alfred H.
Fargo	Allen, Keith G.
Harvey	Hensel, William W.
Milnor	Cole, Kenneth J.
Minot	Neuner, John A.
New Rockford	Braxmeier, Fred C.
Wahpeton	Murray, George C.

Ohio

Ada	Brewer, Clarence W.
Adena	Crawford, Raymond C.
Akron	Berry, Dorral D.
Akron	Beylin, Stanley
Akron	Goldberg, Sidney I.
Akron	Lozier, Karl A.
Ashland	Hartsel, John A.
Bellaire	Burkett, Charles F.
Belpre	Hill, James J.
Berea	Pearson, David B., Jr.
Bergholz	Dechristofaro, John P.
Bergholz	Novotny, John W.
Brecksville	Orley, Ray M.
Cambridge	Jones, Beryl K.
Canton	Pressler, Claude L.
Cincinnati	Hayes, George W.
Cincinnati	Kenney, June G.
Cincinnati	Lytton, Joseph M.
Cincinnati	McAllister, Charles R.
Cincinnati	Stephenson, William F.
Cleveland	Bent, George, Jr.
Cleveland	Berger, Herbert L.
Cleveland	Biel, David
Cleveland	Dworkin, Sanford A.
Cleveland	Friedman, Allen I.
Cleveland	Garbas, Anthony L.
Cleveland	Gaudio, James J.
Cleveland	Gerson, Alex D.
Cleveland	Goodwin, William M.
Cleveland	Graver, Carl J.
Cleveland	Henahan, James P.
Cleveland	Hoffman, Morris L.
Cleveland	Kasik, Alfred F.
Cleveland	Kessler, Harry A.
Cleveland	Leekala, John M.
Cleveland	Manco, Michael F.
Cleveland	Nozik, David A.
Cleveland	Rose, George H.
Cleveland	Rosen, Isadore L.
Cleveland	Rosenstein, Herbert L.
Cleveland	Russ, Harry C.
Cleveland	Sammon, John V., Jr.
Cleveland	Segan, Michael J.
Cleveland	Toomey, Henry J.
Cleveland Hts.	Cole, Irving D.
Cleveland Hts.	Kounin, Sanford B.
Cleveland Hts.	Shaw, Emanuel V.
Cleveland Hts.	Turek, Lada J.
Columbia	Becker, Karl W.
Columbus	Appleman. Robert M.
Columbus	Close, William K.
Columbus	Dennison, Bernard J.
Columbus	Dute, Harold L.
Columbus	Engelman, William P.
Columbus	Gerstel, Alexander
Columbus	Hamilton, John R.
Columbus	Pohto, Allan R.
Columbus	Rumbaugh, James A.
Columbus	Schiff, Paul L.
Columbus	Shaw, Robert B.
Columbus	Swerdlow, Samuel C.
Columbus	Uretsky, Kenneth
Columbus	Wasserstrom, Leonard
Columbus	Wasserstrom, Stanley
Dayton	Holmes, Burdette
Dayton	Marshall, Paul E.
Dayton	Speert, Harry A.
Dayton	Stone, Arthur
Delphos	Stippich, Richard N.
Dover	Machan, Herbert P.
Euclid	Loucks, Howard C.
Fairview Village	Allen, Graham N.
Flushing	Kirk, Rodney V.
Galion	Postance, Daniel W.
Galion	Sacks, Manuel M.
Gallipolis	Pope, Raymond F.
Girard	Senseman, Roger A.
Hamilton	Koenig, Charles E.
Lakewood	Bobofchek, Charles S.
Lakewood	Gneuhs, Robert E.
Lakewood	Hahn, George W.
Lakewood	Hofrichter, David C.
Lakewood	Odell, Nelson H.
Lancaster	Blaine, Charles R.
Lancaster	Graf, Paul F.
Loudonville	Church, Lawrence C., Jr.
McConnelsville	Denny, Earl W.
Mansfield	Herring, James H.
Marion	Coughenour, Theodore R.
Massillon	Snively, Lester J.
Massillon	Williams, Robert H.
Medina	Fri, Frederick A.
Mentor-on-the-Lake	Emmert, John H.
Middletown	Harkrader, John H.
Navarre	Teeters, John W.
Newark	Brown, Ralph H.
Newcomerstown	Warren, Richard F.
Newton Falls	Plahy, Andrew E.
North Olmsted	Bente, William E.
Pleasant City	Troyan, Stephen G.
Pleasant Hill	Perkins, Jack R.
Salem	Hurray, Joseph J.
Salem	Schmid, Joseph F.
Seville	Kirchhofer, Melvin L.
Shaker Hts.	Barnes, Richard E.
Shaker Hts.	Campbell, Malcolm F.
Shaker Hts.	Coplan, Barnett A.
Shaker Hts.	Loughry, James R.
Springfield	Umbaugh, Coral V.
Steubenville	Greenburg, James L.
Stryker	Kimble, Robert W.
Toledo	Backus, William T.
Toledo	Bame, Harry
Toledo	Calaway, George A.
Toledo	Cartin, Samuel
Toledo	Fries, George W.
Toledo	Karpanty, Thaddeus S.
Toledo	Kotecki, Anthony J.
Toledo	Rogers, Edward F.
Toledo	Sweet, Harold
Troy	Larcom, Lloyd R.
University Hts.	Golden, Sanford S.
University Hts.	Vosmik, Edwin P.
Upper Sandusky	Davis, Kenneth M.
Warren	Fester, Charles C.
Warren	Hahn, Roland P.
Warren	Shafer, James E.
Warren	Thornhill, James M.
Westerville	Baldridge, John P.
West Liberty	Hale, John D.
Willoughby	Fedor, Ernest J.
Wilmington	Williams, Paul L.
Wooster	Ott, Doyle C.

Wooster	Rhinesmith, Rex T.
Xenia	Morton, Robert M.
Xenia	Reeves, Edgar N.
Youngstown	Balmenti, Victor P.
Youngstown	Brody, Jerome I.
Youngstown	James, William T.
Youngstown	McCarthy, Walter J.
Youngstown	Moyer, Wilbur V.
Youngstown	Ross, Peter P.

Oklahoma

Antlers	Divine, Hal G.
Ardmore	Pretty, William H.
Bristow	Gawey, Albert C.
Edmond	Miley, Thomas H.
Enid	Whiteneck, Otho R.
Garber	Fowler, Nolton E.
Hobart	Ault, Glenn S.
Lawton	Lansden, Joe P.
Maud	Harrison, Thomas F., Jr.
Maud	Kuzel, LeRoy J.
Muskogee	Patriquin, Forrest D.
Oklahoma City	Clinton, John M.
Oklahoma City	McCutchen, Donald P.
Okmulgee	Hauser, Irving M.
Talihina	Morano, Ugo J.
Tulsa	Glass, Charles H.
Tulsa	Lamborn, Howard E.
Woodward	Hunter, William R.

Oregon

Eugene	Whittaker, Verne W.
Hood River	Henderson, James W.
Klamath Falls	Peak, Francis W.
Medford	Chambers, Donald G.
Medford	Hoppe, Walt E.
North Bend	Anderson, Fred R.
Portland	Backstrand, Samuel E.
Portland	Bartels, John C.
Portland	Bennett, Robert F.
Portland	Carson, Carlisle
Portland	Crump, John D.
Portland	Currie, John H.
Portland	Fisher, Everett J.
Portland	Gigandet, Lawrence O.
Portland	Hoyt, John H.
Portland	Katzky, Arthur S.
Portland	Kleinman, Mathew T.
Portland	Lipscomb, Tom F.
Portland	Nystrom, Ernest G.
Portland	Price, William R.
Portland	Rademacher, Arno J.
Portland	Rogers, Milford J.
Portland	Rushin, Leonard A.
Portland	Waterman, Ernest A.
Portland	Wilder, Lyndon S.
Portland	Winkler, Harry
Roseburg	Single, Harry A.
Salem	Schoel, Louis B.

Pennsylvania

Altoona	Hill, Harry A.
Ambridge	Kensel, John R., Jr.
Ambridge	Laskowski, Edward J.
Ardmore	Fox, Thomas P.
Ashland	Eltringham, Arthur B.
Aspinwall	Ambrose, Robert D.
Athens	Cimmons, Stanley J.
Bakerstown	Gale, Lynn J., Jr.
Beaver	Smith, Louis C., Jr.
Bellevue	Allen, John A., Jr.
Bethlehem	Worsley, John C. W.
Bloomsburg	Miller, John J.
Blossburg	McMillen, Adrian F.
Brookline	West, Haydn M.
Butler	Boyle, James C.
Cambridge Springs	Hagarman, Donald P.
Carnegie	Halpin, Russell S.
Chambersburg	Black, William E.
Chambersburg	Miller, William K.
Charleroi	Fontaine, Lewis E.
Clairton	Barrickman, William A., Jr.
Clarion	Sardi, Carl A.
Clarion	White, John F.
Dickson	Kowalski, Walter H.
Duquesne	Schaming, Paul E.
Easton	Weintraub, Alvin I.
Ebensburg	Owens, Fritz K.
Elizabeth	Monheim, Leonard M.
Elkins Park	Stern, E. Milton
Ephrata	Wenger, James Q.
Erie	Baker, Charles M.
Erie	Engelskirger, Eugene G.
Erie	Kelson, James F.
Erie	Rosenthal, Vincent P.
Fredericktown	Smith, Stewart E.
Freedom	Byers, Alton D.
Glenshaw	Bender, Carl J.
Glenside	Miles, William S., Jr.
Greensburg	Haley, James P.
Greenville	Peters, Robert C.
Harrisburg	Boyer, Lloyd L.
Hazelton	Mussari, Anthony S.
Hickory	Wilkinson, Donald G.
Imperial	Silverblatt, Salvin
Indiana	Edwards, Frank G.
Ingram	Shipley, Earl W.
Johnstown	Dunford, Walter L.
Kingston	Clark, Lawrence F.
Kingston	Rynk, Stanley H.
Kingston	Teitsworth, Alfred N.
Kutztown	Fairchild, Jay A.
Lancaster	Gaige, Charles S.
Lancaster	Wood, John H.
Lancaster	Yoder, Clair C.
Lansdale	Rossel, James L.
Lansdowne	Yeaman, David H.
Lebanon	Hoffman, Charles I.
Lewisburg	Nesbit, Samuel M.
Luzerne	Judkovics, Marvin D.
McDonald	Luccy, George A.
McKeesport	Buckingham, Edward B., Jr.
McKeesport	Schmidt, Paul J.
McKeesport	Succop, Robert M.
McKees Rocks	Aiello, Phillip G.
McKees Rocks	Zubritzky, Alexander L.
Mahanoy City	Campbell, John P.
Mann's Choice	Burkett, Clifford W.
Meadville	Grimaldi, Frank M.
Middlesex	Miller, William B.
Millerstown	Gelnett, Roy L.
Minersville	Boran, Robert P.
Mocanaqua	Kowalski, Walter J.

Monongahela	Giannangelo, Frank F.
Montrose	Lott, Harland W.
Mount Carmel	Andrulonis, Anthony C.
Mount Holly Springs	Debolt, Robert L.
Mount Holly Springs	Janison, Ernest J.
Mt. Lebanon	Lewis, Fredrick H.
Nanticoke	Knoll, Alois
Nazareth	Brazina, Reuben I.
Neffs	Kern, Byron E.
Nesquehoning	Jenkins, George E.
New Bethlehem	Dougherty, William O.
New Florence	Horrell, Matthew C.
New Holland	Sheaffer, John J.
New Kensington	Beatty, Robert W.
New Kensington	Dunhoff, Howard J.
Newton	Goehring, Rufus C.
Norristown	Greenfield, Albert M.
Oakdale	Lytle, William B.
Oakmont	Beldham, Victor E.
Old Forge	Alimenti, Frank C.
Oliphant	Tomasetti, Remio R.
Palmerton	Horlacher, Harold O.
Palmyra	Kern, Louis D.
Petersburg	Ford, John E.
Philadelphia	Album, Manuel M.
Philadelphia	Alloy, Jack
Philadelphia	Altman, Leon J.
Philadelphia	Bahler, Frederick W.
Philadelphia	Bender, Henry S.
Philadelphia	Brennan, John F.
Philadelphia	Brennecke, Harry W.
Philadelphia	Charen, Milton
Philadelphia	Cherkas, Leon
Philadelphia	Cohen, Max A.
Philadelphia	Costa, Earl C.
Philadelphia	Crolius, William E., Jr.
Philadelphia	Dektor, Abram A.
Philadelphia	DeMarco, Arthur J.
Philadelphia	Diller, John W.
Philadelphia	Duryea, David H.
Philadelphia	Dzuba, Albert
Philadelphia	Eingorn, Julius
Philadelphia	Elfant, Sidney
Philadelphia	Ellis, Nathan J.
Philadelphia	Feingold, Elmer A.
Philadelphia	Feld, Herbert H.
Philadelphia	Feldman, Milton L.
Philadelphia	Feldsher, Nathan R.
Philadelphia	Field, Reuben
Philadelphia	Gamba, Waldo G.
Philadelphia	Gershenson, Morris
Philadelphia	Goetzberger, Ernest M.
Philadelphia	Gordy, Edward M.
Philadelphia	Greenstein, Abraham E.
Philadelphia	Halpern, Leonard E.
Philadelphia	Henry, William
Philadelphia	Hetos, Nicholas S.
Philadelphia	Hillerson, David
Philadelphia	Hogan, Frank L.
Philadelphia	Horowitz, Raymond
Philadelphia	Jacobs, Simon G.
Philadelphia	Kalwaic, Henry J.
Philadelphia	Kanefsky, Louis
Philadelphia	Kauffman, Joseph W.
Philadelphia	Kober, Louis, Jr.
Philadelphia	Lacava, Joseph J.
Philadelphia	Latman, Bernard
Philadelphia	Lazar, William
Philadelphia	Lipsius, Martin S.
Philadelphia	Lisowski, Stanley J.
Philadelphia	Liss, Jackson B.
Philadelphia	Lutzky, Herbert N.
Philadelphia	McFall, Thomas A.
Philadelphia	Malamed, Emanuel H.
Philadelphia	Miller, Abraham R.
Philadelphia	Morrison, James D.
Philadelphia	Novik, Morris
Philadelphia	Orsher, Leon
Philadelphia	Ostrow, Benjamin H.
Philadelphia	Paul, Bernard
Philadelphia	Phillips, Herbert L.
Philadelphia	Pollock, Seymour
Philadelphia	Porter, Arthur L.
Philadelphia	Riss, Bernard
Philadelphia	Rogal, David
Philadelphia	Rosa, Nicholas J.
Philadelphia	Roseman, Samuel I.
Philadelphia	Savitz, Percy G.
Philadelphia	Scanlan, William
Philadelphia	Schwartz, Samuel
Philadelphia	Sellers, James R.
Philadelphia	Silver, Mark L.
Philadelphia	Snyder, Richard
Philadelphia	Spivack, Albert
Philadelphia	Weinstein, Joseph A.
Philadelphia	Weiss, Joseph H.
Philadelphia	Wesler, Nathan
Philadelphia	White, Joseph F.
Philadelphia	Wiener, Abraham A.
Philadelphia	Wilson, Sidney
Philadelphia	Wolf, Milton L.
Philipsburg	Gette, Claude A., Jr.
Philipsburg	Gette, Luther M.
Pittsburgh	Bernstein, Maurice G
Pittsburgh	Boslett, John A.
Pittsburgh	Brodie, Jacob
Pittsburgh	Carver, Samuel J.
Pittsburgh	Dattilo, James M.
Pittsburgh	Ertzman, Karl E.
Pittsburgh	Ewing, Frederick M.
Pittsburgh	Harmeier, Charles A., Jr.
Pittsburgh	Ignelzi, Albert E.
Pittsburgh	Lee, Walter S.
Pittsburgh	Levant, Edward H.
Pittsburgh	Levine, Ralph
Pittsburgh	Liddell, George G.
Pittsburgh	Murray, Walter E.
Pittsburgh	Oakley, Charles E
Pittsburgh	Ranish, John J.
Pittsburgh	Riley, Joseph A.
Pittsburgh	Singer, Daniel
Pittsburgh	Spiegel, David
Pittsburgh	Wagner, Donald E.
Pittsburgh	Webb, William K.
Pittsburgh	Wintner, Allan J.
Pittston	Fasciana, Joseph A.
Pottsville	Diamond, Emanuel M.
Reading	Smith, William I.
Ridgeway	Shaw, John C.
St. Davids	Falcone, Vincent A.
Saxton	Barton, Charles C.
Sayre	Evans, Robert M.
Schellsburg	Ralston, Harold J.
Scranton	Fruehan, George M. L.

Scranton	Gardner, Frank B.
Scranton	Hannon, Robert J.
Seelyville	Payne, Harold B.
Sharpsburg	Acri, Oliver F.
Slatington	Thomas, Marvin R.
Somerset	Gourley, George P.
Spring City	Reh, Christian F.
Stroudsburg	LaBarre, Monroe B.
Throop	Sirotnak, Andrew P.
Titusville	Smith, Robert E.
Tunkhannock	Evans, Edward T.
Union	Fleming, Robert M.
Upper Darby	Buono, Vincent J.
Upper Darby	D'Alesio, Daniel J.
Warren	DeForest, William G.
Waynesboro	Mathias, Craig P.
Wilkes-Barre	Bednark, Leo E.
Wilkes-Barre	Slavin, Mortimer I.
Wilkinsburg	Krider, John A.
Williamsport	Henry, Hyman I.
Windber	Klena, Matthew J., Jr.
Windber	Solomon, Michael
Wyoming	Chiampi, Charles J.
York	Aulbach, Philip
York	Weaver, Francis E.
York	Wolfe, Henry G.
	Rhode Island
Newport	Alofsin, Fred R.
Newport	Ozarin, Simon
Providence	Biderman, Jacob
Providence	Decesare, William F.
Providence	Pennine, Saverio N.
	South Carolina
Chester	Balser, Jacob L.
Columbia	Chapman, John H.
Columbia	Shaw, Arthur E., Jr.
Darlington	Blackman, Lee F., Jr.
Greenville	Nagle, John C.
Spartanburg	LeMaster, Hamlet W.
	South Dakota
Eureka	Olson, Alfred G.
Wessington	Smith, Eugene L.
	Tennessee
Chattanooga	Auten, Donald T.
Chattanooga	Meacham, Forrest O.
Dayton	Taylor, Garland V., Jr.
Gallatin	Carothers, William H.
Memphis	Buchignani, John S.
Memphis	Fortas, Edward M.
Nashville	Aita, Clemens R.
Nashville	Keller, Joe H.
Parrottsville	Redmond, Charles A.
	Texas
Beaumont	Herman, Sigmund B.
Dallas	Bell, Welden E.
Dallas	Kennedy, Thomas H.
Fort Worth	Arledge, William I., Jr.
Fort Worth	Davis, Raymond M.
Fort Worth	Gibbe, Carl A.
Fort Worth	Smith, Thomas S.
Galveston	Magliolo, Adolph P.
Gladwater	Spencer, Craig L.
Houston	Cmelka, Bohumil J.
Houston	Cochran, William A.
Houston	Drane, Joe B., Jr.
Houston	Futrell, Ralph G.
Houston	Kurtzemann, James C.
Karnes City	Buck, Omar D.
New Braunfels	Stratemann, Ottomar A.
Tyler	Biscoe, Byron
	Utah
Salina	Latimer, Richard G.
Salt Lake City	Hirota, Carl T.
	Vermont
Brattleboro	Neumeister, Roy D.
Montpelier	Haven, Gilman W.
	Virginia
Newport News	Boatwright, Wesley A.
Petersburg	Alexander, William H.
Richmond	Burke, William A.
Richmond	Connell, Matthew J., Jr.
Richmond	Wilson, Robert O.
	Washington
Bremerton	Bugbee, Clyde S.
Kennewick	Wegner, Arthur H.
Seattle	Adams, Fred E.
Seattle	Bourassa, Demetrius F.
Seattle	Hammond, Howard J.
Vancouver	Burke, Lawrence M.
	West Virginia
Parkersburg	Rogers, John D.
St. Mary's	Woodward, Charles L.
Wheeling	Dekoning, Edward J.
	Wisconsin
Appleton	Stingle, Raymond J.
Appleton	Zwerg, Alvin W.
Cadott	Ludowise, Charles P.
Chippewa Falls	Jennings, Thomas W.
Fond du Lac	Burns, Donald L.
Manitowoc	Grangaard, Lawrence R.
Milwaukee	Cahlamer, James E.
Milwaukee	Dahlk, Alfred J.
Milwaukee	Demoling, John R.
Milwaukee	Docksteader, Archie W.
Milwaukee	Doherty, Roderick W.
Milwaukee	Immler, Ralph Edward
Milwaukee	Rein, Bernard E.
Milwaukee	Staszkunas, Joseph L.
Milwaukee	Stokien, Theodore S.
Sawyer	Shaffer, Francis W.
	Wyoming
Cheyenne	Millard, Erceil V.

LIST OF NAVY DENTAL OFFICERS SEPARATED FROM SERVICE

The following officers have been separated from the Dental Corps of the U.S. Navy. This list is not complete. Publication will be given to other names as soon as possible.

Alabama

Albertville	Cochran, Owen L.	Lieut.
Decatur	Parks, Raymond H.	Lieut.
Eufaula	Moorer, William D.	Lieut.
Gadsden	Haggard, Oliver F.	Lieut.
Mobile	Boutreis, Warren J.	Lieut.
Northport	Wheat, Alva A.	Lieut.
Prichard	Newburn, Heubert D.	Lieut.
Tuscaloosa	Hughey, James F.	Lieut.

Arizona

Phoenix	Jones, Fred C.	Lieut.
Phoenix	Lowe, James M.	Lieut.
Warren	Colford, T. E., Jr.	Lieut.

Arkansas

De Witt	Rasco, James B.	Lieut.
Heber Springs	Robbins, Joe N.	Lieut.
Marianna	Brown, William M.	Lieut.

California

Anaheim	Craddock, John E., Jr.	Lieut.
Banning	McClean, Charles E.	Lieut.
Berkeley	Bradley, John P.	Lieut.
Berkeley	Simon, Burney	Lieut.
Beverly Hills	Mamlet, Howard L.	Lieut.
Compton	Ralls, Walter E.	Lieut.
Compton	Reinsch, Robert E.	Lieut.
Fresno	Albarian, Haig S.	Lt. Cmdr.
Glendale	Potts, Billy J.	Lieut.
Glendale	Reynolds, Joseph N.	Lieut.
Hermosa Beach	Monek, Gregory G.	Cmdr.
Hollywood	Borland, Robert L., II	Lieut.
Hollywood	Jepson, J. M.	Lt. Cmdr.
Hollywood	White, Alan M.	Lieut.
Laguna Beach	Walter, George W., Jr.	Lieut.
Long Beach	Claypool, Charles E.	Lieut.
Los Angeles	Ahlstrom, Charles H.	Lieut.
Los Angeles	Asrican, Phill	Lieut.
Los Angeles	Bonto, Carroll	Lt. Cmdr.
Los Angeles	Foutz, Robert E.	Lieut.
Los Angeles	Fugitt, Robert W.	Lieut.
Los Angeles	Gray, Charles S.	Lieut.
Los Angeles	Hubbs, Euphra C., Jr.	Lieut.
Los Angeles	Johnson, George W.	Lieut.
Los Angeles	Laine, Carl E.	Lieut.
Los Angeles	Larson, Edwin M., Jr.	Lieut.
Los Angeles	Musicer, Max B.	Lieut.
Los Angeles	O'Mara, M. J.	Lt. Cmdr.
Los Angeles	Payne, Everitt V.	Lieut.
Los Angeles	Smith, Howard C.	Cmdr.
Los Angeles	Thorne, Vernon K.	Lieut.
Los Angeles	Watson, John A.	Lieut.
Los Angeles	Wolfrom, Jack C.	Lieut.
Los Angeles	Wood, Charles G.	Lieut.
Menlo Park	Aarons, Bernard S.	Lieut.
Menlo Park	Wormley, Lorentz E.	Lieut.
Mountain View	Smith, Robert L.	Lt. Cmdr.
Oakland	Risedorph, Wesley E.	Lieut.
Ontario	Latimer, Richard F.	Lieut.
Pasadena	Harris, F. N.	Lt. Cmdr.
Piedmont	Adams, John H.	Lt. Cmdr.
Redondo Beach	Meacham, Douglas G.	Lieut.
Redondo Beach	Reeder, John W., Jr.	Lieut.
San Bernardino	Bowen, Neal D., Jr.	Lieut.
San Diego	Ridgeway, Cecil W.	Lieut.
San Diego	Schroeder, John K.	Lieut.
San Francisco	Bentley, C. F.	Lt. Cmdr.
San Francisco	Buckingham, David F.	Lieut.
San Francisco	Crutcher, Fred F.	Lieut.
San Francisco	deGuerre, C. W.	Lt. Cmdr.
San Francisco	Heller, Louis N.	Cmdr.
San Francisco	Kahn, Kenneth S.	Lieut.
San Francisco	Keefe, Edmond D., Jr.	Cmdr.
San Francisco	Stern, David D.	Lieut.
San Francisco	Wright, Robert A.	Lieut.
San Francisco	Young, William E.	Lieut.
San Gabriel	Waterhouse, K. P.	Lieut.
San Marino	Irwin, W. R.	Lt. Cmdr.
San Marino	Thompson, Robert W.	Lieut.
Santa Monica	Vaughan, Robert S.	Lieut.
South Gate	Wilson, Harvey H.	Lieut.
South Pasadena	Simpson, Kenneth J.	Lieut.
Van Nuys	Heiman, Edward L.	Lieut.
Visalia	Clark, Leslie S.	Lieut.

Colorado

Colorado Springs	Cogswell, Kenneth J.	Lieut.
Colorado Springs	Cogswell, W. F.	Lt. Cmdr.
Salida	Schneider, Raymond	Lieut.

Connecticut

East Hartford	Patur, Benjamin	Lieut.
Fairfield	Prach, Arthur T.	Lieut.
Hamden	Sommers, Charles F.	Lieut.
Hartford	Kolakowski, Henry P.	Lieut.
Middletown	Cubeta, Nicholas P.	Lieut.
New Britain	Scully, Joseph B.	Lieut.
New Haven	Berman, Irving	Lieut.
New Haven	Gladstone, Sydney L.	Lieut.
New Haven	Moss, Eugene	Lieut.
Norwich	Nowosadko, R. F.	Lieut.
Rockville	Hyjek, Stanley J.	Lieut.
Torrington	Dohanyos, Stephen G.	Lieut.
Wallingford	Biega, Stanley G.	Lieut.
Watertown	Hewitt, Merritt S.	Lieut.
West Hartford	Herman, Paul A.	Lieut.
Willimantic	Scheinman, S.	Lt. Cmdr.

District of Columbia

Washington	Chase, Alexander	Lt. Cmdr.
Washington	Copping, E. J., Jr.	Lieut.
Washington	Levin, Stanley	Lieut.
Washington	McCain, W. E., Jr.	Lieut.
Washington	Manchester, Kiva	Lieut.
Washington	Mostek, Emil F.	Lieut.
Washington	Oliveri, Michael E.	Lieut.
Washington	Silverman, David A.	Lieut.
Washington	Wolfe, Everett J.	Lieut.

Florida

Apopka	Talton, Gordon T.	Lieut.
Daytona Beach	Thompson, E. L., Jr.	Lieut.
Miami	Akers, Alvin E.	Lieut.
Miami	Magrill, Charles B.	Lieut.
Miami	Pearson, C. D.	Lieut.
Miami	Seitlin, Jack	Lieut.
Miami	Stocks, Gideon J.	Lieut.
Miami Beach	Breinin, Daniel J.	Lieut.
Pensacola	Pope, Thomas W., Jr.	Lieut.
Quincy	Gray, Edwin D.	Lieut.

Georgia

Atlanta	Allred, James F.	Lieut.
Atlanta	Fowler, T. G., Jr.	Lt. Cmdr.
Bolton	McDonald, Allen P.	Lieut.
Columbus	Dimenstein, Paul	Lt. Cmdr.
Columbus	Johnson, Nolan L.	Lieut.
Dalton	Patterson, Frank W.	Lieut.
Dublin	Zetterower, John W.	Lieut.
Ellenwood	Berck, Kenneth A.	Lieut.
Moultrie	Killebrew, James H.	Lieut.
Newnan	Sneed, E. P., Jr.	Lt. Cmdr.
Thomson	Neal, Thomas J.	Lieut.

Idaho

Pocatello	Bale, Lewis D.	Lieut.
Preston	Merrill, Vinton M.	Lieut.

Illinois

Anna	Casper, H. R.	Lt. Cmdr.
Aurora	Thurow, Raymond C.	Lieut.
Berwyn	Sedlacek, James W.	Lieut.
Blue Island	Pippert, Donald	Lieut.
Brookfield	Grundset, Harold E.	Lieut.
Brookfield	Rea, John A.	Lieut.
Bushnell	Chain, Phil L.	Lieut.
Chicago	Barclay, Paul S.	Lieut.
Chicago	Bartz, R. A.	Lt. Cmdr.
Chicago	Berley, Alfred G.	Lt. Cmdr.
Chicago	Brahm, John P.	Lieut.
Chicago	Brandt, Clarence A.	Lieut.
Chicago	Dankowski, Casimir E.	Lieut.
Chicago	Fafinski, John S.	Lieut.
Chicago	Fash, Andrew H.	Lieut.
Chicago	Franklin, Leonard	Lieut.
Chicago	Giudice, George J.	Lieut.
Chicago	Hall, Harrie L.	Lieut.
Chicago	Harris, LaMar W.	Cmdr.
Chicago	Hillier, C. W., Jr.	Lieut.
Chicago	Janes, Lester L.	Lieut.
Chicago	Janicki, C. P., Jr.	Lieut.
Chicago	John, Joel D.	Lt. Cmdr.
Chicago	Johnson, F. W.	Lt. Cmdr.
Chicago	Karel, Samuel R.	Lt. Cmdr.
Chicago	King, Duncan A.	Lieut.
Chicago	Kosel, Edwin C.	Lt Cmdr.
Chicago	Kowalik, Bruno M.	Lieut.
Chicago	Kral, Theodore T.	Lieut.
Chicago	Kraske, Leonard M.	Lieut.
Chicago	Laenertz, Ernest J.	Lieut.
Chicago	Lange, George H.	Lieut.
Chicago	Laskowski, J. M.	Lt. Cmdr.
Chicago	Lossman, C. K.	Lt. Cmdr.
Chicago	Mangion, Quentin F.	Lieut.
Chicago	Matera, Charles R.	Lieut.
Chicago	Meier, Gerald A.	Lieut.
Chicago	Offenlock, Frank L.	Lieut.
Chicago	O'Grady, E. J.	Lt. Cmdr.
Chicago	Ronning, John A.	Lieut.
Chicago	Sarton, Henry M.	Lieut.
Chicago	Schaffner, Sanford	Lieut.
Chicago	Schlueter, R. C., Jr.	Lieut.
Chicago	Seitz, Victor W.	Lieut.
Chicago	Speaks, W. D.	Lt. Cmdr.
Chicago	Twedt, David C.	Lieut.
Chicago	Vlk, Vance J.	Lieut.
Chicago	Wilcox, John A.	Lt. Cmdr.
Chicago	Wing, Robert L.	Lieut.
Chicago	Ziolkowski, Edwin T.	Lieut.
Elgin	Rovelstad, Gordon H.	Lieut.
Evansville	Wolff, Roy M.	Lt. Cmdr.
Fithian	Shepherd, C. E., Jr.	Lieut.
Joliet	Boles, John E.	Lieut.
Joliet	Sitar, Karl J.	Lieut.
Lake Bluff	Schaffer, Frederick M.	Lieut.
Libertyville	Chrisman, Robert A.	Lieut.
Lincoln	Goebel, Robert E.	Lieut.
Lincolnwood	Oppice, Robert B.	Lieut.
Momence	Holley, Zeland R.	Lieut.
Niles	Bobal, Frank J.	Lieut.
Normal	Mercier, C. A., Jr.	Lieut.
Oak Park	Sayre, Loren D.	Lieut.
Oak Park	Watts, Robert E.	Lieut.
Oak Park	Westland, Everett M.	Lieut.
Oak Park	Williams, R. M.	Lt. Cmdr.
Park Ridge	Gillooly, C. J.	Lt. Cmdr.
Peoria	Bailey, David J.	Lieut.
Pittsfield	Berry, Evart F.	Lieut.
Pleasant Hill	Galloway, Claud E.	Lieut.
Quincy	Kennard, Warren G.	Lieut.
Robinson	Apple, Marion D.	Lieut.
Springfield	Hester, Harold L.	Lieut.
Sterling	Gerdes, Charles D.	Lieut.
Toulon	Bowman, Richard S.	Lieut.
Villa Grove	Schick, Robert E.	Lieut.
Winnetka	Gott, Porter H.	Lieut.
Winnetka	Lazear, William H.	Lieut.

Indiana

Columbus	Jones, James M.	Lieut.
Crawfordsville	Coon, Wilbur S.	Lieut.
Crawfordsville	James, Ernest K.	Lieut.
Decatur	Hudson, Cyrus M.	Lieut.
Dunkirk	Stragand, G. J., Jr.	Lieut.
Evansville	Jordan, Victor G.	Lieut.
Hanna	Wicks, Clifford A.	Lieut.
Indianapolis	Healey, Harry J.	Lt. Cmdr.
Indianapolis	Matlock, James F.	Lieut.
Indianapolis	Meyer, Harry C.	Lt. Cmdr.
Indianapolis	Stone, Robert B.	Lieut.
Indianapolis	Stoner, Morris M.	Lieut.
Ligonier	Calbeck, Marion J.	Lieut.
Logansport	Hafert, Joe A.	Lieut.
Monrovia	Simpson, George W.	Lieut.
New Albany	Lee, William W.	Lieut.
Princeton	Boren, Wilber C.	Lt. Cmdr.
Southport	Esmon, John T.	Lieut.
Terre Haute	Aitken, William, Jr.	Lieut.
Terre Haute	Copher, Paul E.	Lieut.
Vincennes	Shroyer, James R.	Lieut.
Waterloo	Ish, Roger E.	Lieut.
Yoder	Spear, Jean W.	Lieut.

Iowa

Allison	Folkers, Charles W.	Lieut.

Boone	Allender, John S.	Lieut.
Coon Rapids	Weber, Joseph S.	Lt. Cmdr.
Cromwell	Mullin, Carroll B.	Lieut.
Des Moines	Johnson, J. W., Jr.	Lieut.
Edgewood	Newman, Dwight W.	Lieut.
Iowa Falls	Wolfe, H. W.	Lt. Cmdr.
Keota	Maule, Marion E.	Lieut.
Le Mars	Mauer, N. C.	Lt. Cmdr.
Mason City	Kunz, R. F., Jr.	Lieut.
Muscatine	Klepper, Fred G.	Lt. Cmdr.
Sac City	Swearingen, John C.	Lieut.
Waterloo	Watson, A. T.	Lt. Cmdr.

Kansas

Assaria	Johnson, Maynard E.	Lieut.
Fredonia	Davies, Henry J.	Lt. Cmdr.
Howard	Reid, Richard R.	Lieut.
Kansas City	Rahner, R. G.	Lt. Cmdr.
Kansas City	Riehl, Alvin E.	Lieut.
Topeka	Ball, Frank M., Jr.	Lieut.
Topeka	Stallard, E. T.	Lt. Cmdr.
Tribune	Johnson, Vergil R.	Lieut.
Wichita	Howard, Verne E.	Lieut.
Wichita	Mammel, Clayton K.	Lieut.

Kentucky

Adairville	Duley, William P.	Lieut.
Ashland	Sawyer, James G.	Lieut.
Danville	Davis, George R.	Lieut.
Kevil	Titsworth, Arvil H.	Lieut.
Latonia	Foote, Charles J.	Lieut.
Louisville	Hawkins, Winford D.	Lieut.
Murray	Hutson, Woodfin, Jr.	Lieut.
Winchester	Herman, Arthur H.	Lieut.

Louisiana

Houma	Fesi, Frank	Lieut.
Houma	Henry, Royce J.	Lieut.
New Orleans	Allenburger, C. A.	Lt. Cmdr.
New Orleans	Brown, Theodore J.	Lieut.
New Orleans	Diaz, Sinesio, Jr.	Lieut.
New Orleans	Jackson, Virgil T., Jr.	Lieut.
New Orleans	Munro, Louis F.	Lieut.
New Orleans	Villien, Paul O.	Lieut.
Shreveport	Elliott, James J.	Lieut.
Sunset	Miller, Charles H.	Lt. Cmdr.
White Castle	Hebert, Lester G.	Lieut.

Maine

Island Falls	Banton, George W.	Lieut.
Portland	Stockwell, Ira W.	Lt. Cmdr.

Maryland

Baltimore	Berk, Bernard R.	Lt. Cmdr.
Baltimore	Digristine, Michael J.	Lieut.
Baltimore	Kellam, Mervyn W.	Lieut.
Baltimore	Kramer, Donald	Lieut.
Baltimore	Singer, Isadore L.	Lieut.
Baltimore	Zuskin, Raynard F.	Lieut.
Boyds	Paffenbarger, G. C.	Commo.
Silver Springs	Dickson, R. A., Jr.	Lieut.
Silver Springs	Holt, John H.	Lieut.
Westmoreland Hills	Fabrizio, F. J.	Lt. Cmdr.

Massachusetts

Belmont	Beebe, Henry C.	Lt. Cmdr.
Beverly	Keach, Frederick P.	Lieut.
Beverly	Tannebring, W. C., Jr.	Lieut.
Boston	Adams, Richard M.	Lieut.
Boston	Kozol, Solomon M.	Lt. Cmdr.
Boston	Manhold, John H., Jr.	Lieut.
Bridgewater	Resevick, Charles P.	Lieut.
Brighton	Cook, George P.	Lieut.
Brighton	Hopengarten, Sol.	Lieut.
Brookline	Daitch, Herbert E.	Lieut.
Brookline	Gefen, Sumner	Lieut.
Chelsea	Gerren, Harry	Lieut.
Dorchester	Carvelli, Gennaro R.	Lieut.
Easthampton	Keller, John F.	Lieut.
Fitchburg	Niemi, Walter V.	Lieut.
Gloucester	Kramer, Gerald M.	Lieut.
Hingham	Andrews, H. B., Jr.	Lt. Cmdr.
Holyoke	Goddu, Raymond E.	Lieut.
Hyannis Port	O'Neil, Francis C.	Lt. Cmdr.
Lawrence	Grossman, H. F.	Lt. Cmdr.
Mattapan	Castaline, Arnold H.	Lieut.
Needham	Pullen, Harold D.	Lt. Cmdr.
Newburyport	Plouff, Arthur L.	Lieut.
Newton	Burke, Joseph E.	Lt. Cmdr.
Newton Center	Black, Delbert R.	Lieut.
Newton Center	Dowd, Thomas F.	Cmdr.
Newton Center	Wellock, William D.	Cmdr.
Norwell	Rounds, Charles E.	Lieut.
Plymouth	Loft, Thomas W.	Cmdr.
Quincy	Rappaport, Sidney W.	Lieut.
Roxbury	Arnow, Martin	Lieut.
Roxbury	Tanner, M. M.	Lt. Cmdr.
Springfield	Fraser, Ivan G. H.	Lieut.
Springfield	Welch, John P.	Lieut.
Swampscott	Pickering, Clinton W.	Lieut.
Turners Falls	Olchowski, E. B.	Lieut.
Waban	Colvin, Earl B.	Lieut.
Webster	DuPont, Emile N.	Lieut.
Webster	Ostrowski, Francis W.	Lieut.
Wellesley Hills	Larkin, B. M.	Lieut.
Winthrop	Etherington, J. W.	Lt. Cmdr.
Worcester	Jankowski, T. J.	Lieut.

Michigan

Ann Arbor	Creason, William M.	Lieut.
Ann Arbor	Doyle, Leo H.	Lieut.
Birmingham	Hogg, Paul D.	Lieut.
Cass City	Rawson, Delbert E.	Lieut.
Chesaning	Allen, Ralph D.	Lieut.
Detroit	Barrett, Francis M.	Lieut.
Detroit	Cumming, Roy M.	Lieut.
Detroit	DeLamarter, John A.	Lieut.
Detroit	Feldman, Manuel	Lieut.
Detroit	Grodecki, Edward F.	Lieut.
Detroit	Hertz, Phillip	Lieut.
Detroit	Kitzmiller, Arthur H.	Lieut.
Detroit	Koorhan, Morris	Lieut.
Detroit	Lesser, Morton B.	Lieut.
Detroit	Lezell, Alvin B.	Lieut.
Detroit	Lorenc, Edward R.	Lieut.
Detroit	McGillen, Frank L.	Lieut.
Detroit	Pearl, John D.	Lieut.
Detroit	Roth, Milton E.	Lt. Cmdr.
Detroit	Small, Kenneth B.	Lieut.
Detroit	Wirth, Fred O.	Lieut.
Escanaba	Johnson, Roy B.	Lieut.
Flint	Baessler, Harry A.	Lieut.
Flint	Williams, Charles L.	Lieut.
Gladwin	Flynn, Robert U.	Lieut.
Grand Rapids	Millett, Joseph E.	Lieut.

Grand Rapids	Paine, Robert L.	Lieut.
Grand Rapids	Zvirzdinis, Albert J.	Lieut.
Holland	Tinholt, Jay L.	Lieut.
Ishpeming	Collins, John J.	Lt. Cmdr.
Ishpeming	Holman, Stanley F.	Lieut.
Jackson	Greenbaum, Francis	Lieut.
Lake Odessa	Gilson, Charles M.	Lieut.
Lake Orion	Stanaback, Brandt C.	Lieut.
Manistique	Sromovsky, Andrew J.	Lieut.
Monroe	Dorner, Francis J.	Lieut.
Port Huron	Willis, Harold F.	Lieut.
Royal Oak	Williams, Paul H.	Lieut.
Saginaw	Johnson, Russell L.	Lieut.
Saginaw	Tillock, Robert A.	Lieut.
Sparta	Bromley, Charles H.	Lieut.
Ypsilanti	Cox, Olin J.	Lieut.
Zeeland	Van Eenenaam, P. R.	Lieut.

Minnesota

Albert Lea	Krosch, A. F.	Lt. Cmdr.
Duluth	Kromschroeder, J. G.	Lieut.
Duluth	Merriman, Lloyd A.	Lieut.
Garvin	Carlson, Maynard O.	Lieut.
Melrose	Egerman, Lyle B.	Lieut.
Minneapolis	Barrett, Clarence F.	Lieut.
Minneapolis	Loring, Arthur J.	Lt. Cmdr.
Minneapolis	Pearson, Orrin W.	Lieut.
Minneapolis	Solberg, H. J. E.	Lieut.
Minneapolis	Stenberg, D. C.	Lt. Cmdr.
Minneapolis	Swanstrom, A. W.	Lieut.
Minneapolis	Veker, Stanley W.	Lieut.
Minneapolis	Zeidler, G. C.	Lt. Cmdr.
St. Cloud	Moos, Philip H.	Lieut.
St. Paul	Elmquist, Carl W.	Lieut.
St. Paul	Geiser, Albert L.	Lieut.
St. Paul	Oberschulte, F. R.	Lieut.
Storden	Sunde, Jeremiah T.	Lieut.
Virginia	Richards, J. L.	Lt. Cmdr.
Walnut Grove	Prail, Darold D.	Cmdr.
West Concord	Simpson, Charles D.	Lieut.
Willmar	Anderson, T. M.	Lieut.

Mississippi

Biloxi	Pavlov, Peter, Jr.	Lieut.
Duffee	Blackwell, James R.	Lieut.
Gulfport	Hopkins, Arvah M.	Lieut.
Kosciusko	Pender, Joseph A.	Lieut.
Poplarville	Rouse, Wilbur H.	Lt. Cmdr.

Missouri

Arcadia	Gray, Gus W.	Lieut.
Clayton	Buehl, Arthur W.	Lieut.
Clayton	Prior, Orlando H.	Lieut.
Fristoe	Kirby, Wellington F.	Lieut.
Joplin	Nutz, Speedy R.	Lieut.
Kansas City	Brams, Leon N.	Lt. Cmdr.
Kansas City	Goldberg, Harry L.	Lieut.
Kansas City	McClure, Birt W.	Lieut.
Kansas City	Peak, George W.	Lieut.
Keytesville	Elliott, Herbert Z.	Lieut.
La Due	Fisher, Harry G.	Lieut.
Licking	Reed, Homer V.	Lieut.
Nixa	Wood, William V.	Lieut.
No. Kansas City	Kelly, Stuart D.	Lieut.
Richmond Hts.	Wasem, John L.	Lieut.
St. Charles	Mallinckrodt, Paul B.	Lieut.
St. Joseph	Yancey, George E.	Lieut.
St. Louis	Aschenbrenner, J. J.	Lieut.
St. Louis	Culver, Randall E.	Lieut.
St. Louis	Noll, Harry W.	Lt. Cmdr.
St. Louis	Rupprecht, G. J.	Lt. Cmdr.
St. Louis	Wellman, James R.	Lieut.
St. Louis	Wicker, Roscoe C.	Lieut.
St. Louis	Wood, Quentin L.	Lieut.
Ulman	Dawson, Jackson W.	Lieut.
Versailles	Washburn, William O.	Lieut.

Montana

Billings	Brust, William P.	Lieut.
Conrad	Peterson, Wyman C.	Lieut.
Whitefish	Hileman, Alvin C.	Lieut.

Nebraska

Atkinson	Kubitschek, John D.	Lieut.
Giltner	Cutts, William E.	Cmdr.
Humphrey	Walter, Eugene C.	Lieut.
Lincoln	Furst, Lyle W.	Lieut.
Omaha	Filippi, John Q.	Lieut.
Omaha	Moylan, John D.	Lieut.
Omaha	Weinstein, Sam	Lt. Cmdr.
Osceola	Peterson, Raymond O.	Lieut.
Wausa	Anderson, Lowell L.	Lieut.

New Hampshire

Claremont	Lackey, Leon A.	Lieut.
Exeter	Thomson, James A.	Lieut.
Hollis	Weston, William B.	Lieut.
Keene	Smith, Fay M., Jr.	Lieut.
Portsmouth	Banister, Rolfe G., Jr.	Lieut.

New Jersey

Atlantic City	Gorson, Jerome C.	Lieut.
Bayonne	O'Neill, Justin F.	Lieut.
Bridgeton	Shapiro, Frank M.	Lt. Cmdr.
Camden	Cohen, Samuel	Lieut.
Clifton	Paternoster, A. M.	Lieut.
Deerfield	Herron, Howard M.	Lieut.
Delanco	Brown, James J., Jr.	Lieut.
Dover	Grant, Albert O.	Lieut.
East Orange	McLellan, George H.	Lieut.
East Rutherford	Beck, Heinz O.	Lieut.
Englewood	Dondero, Joseph C.	Lieut.
Freehold	Errickson, E. S. C.	Lieut.
Hackensack	Small, Ernest W.	Lieut.
Haddonfield	Herrman, J. A., Jr.	Lieut.
Haddonfield	Smith, Joseph E., Jr.	Lieut.
Hawthorne	Butterworth, E. J.	Lieut.
Hawthorne	Dusenbery, Charles L.	Lieut.
Highland Park	Quaranta, Frank A.	Lieut.
Indian Lake	Beekman, A. R., Jr.	Cmdr.
Irvington	Kamler, Milton L.	Lieut.
Jersey City	Schneider, Jacob H.	Lieut.
Little Falls	Keilly, Henry V. P.	Lieut.
Morris Plains	Decker, William F.	Lieut.
Mountain Lakes	Spies, Raymond J.	Lieut.
Newark	Garretson, Gilbert K.	Lieut.
Newark	Radler, Herbert	Lieut.
Orange	Aiosa, Vincent E.	Lieut.
Orange	Leichter, S. F.	Lt. Cmdr.
Passaic	Bellet, Melvin	Lieut.
Passaic	Quinlan, M. R.	Lt. Cmdr.
Passaic	Stefanacci, George L.	Lieut.
Paterson	Mechanic, Mayer	Lieut.
Paterson	Miller, Benjamin	Lieut.
Pemberton	Dean, George W.	Lieut.
Penns Grove	Tweed, William J.	Lieut.

Pitman	Blackman, Edward D.	Lieut.
Roselle Park	Holland, Albert O.	Lieut.
South Orange	Anderson, William J.	Lieut.
Union	Fexa, Robert J.	Lieut.
Westfield	Bell, Frank T.	Lieut.

New Mexico

Clovis	Reichart, C. H., Jr.	Lieut.
Santa Fe	Lord, DeForest D., Jr.	Lieut.

New York

Auburn	Hickey, John L.	Lieut.
Auburn	Simmonds, William J.	Lieut.
Bayside	Polay, Charles T.	Lieut.
Bronx	Ash, Milton S.	Lieut.
Bronx	Buck, Henry R.	Lieut.
Bronx	Colaneri, Joseph N.	Lieut.
Bronx	Diamond, David	Lieut.
Bronx	Halpern, Harold	Lieut.
Bronx	Miringoff, Aaron Y.	Lieut.
Bronx	Natter, Howard G.	Lieut.
Bronx	Sabesan, Seymour	Lieut.
Bronx	Uvaro, Francis C.	Lieut.
Brooklyn	Amendola, Frank R.	Lieut.
Brooklyn	Bongiorno, Alfred M.	Lieut.
Brooklyn	Brown, William J.	Lieut.
Brooklyn	Charbonneau, R. G.	Lieut.
Brooklyn	Diner, Harold	Lieut.
Brooklyn	Friedman, Harold	Lieut.
Brooklyn	Giliberti, John J.	Lieut.
Brooklyn	Greene, Robert L.	Lieut.
Brooklyn	Gromet, Victor H.	Lieut.
Brooklyn	Hall, Anthony W.	Lieut.
Brooklyn	Handlers, Martin	Lieut.
Brooklyn	Hollenberg, Morton	Lieut.
Brooklyn	Kenney, J. M.	Lt. Cmdr.
Brooklyn	Lawrence, Peter	Lieut.
Brooklyn	Levine, Harvey D.	Lieut.
Brooklyn	Lifton, Simon L.	Lieut.
Brooklyn	Mandel, Irwin D.	Lieut.
Brooklyn	Murman, Stanley M.	Lieut.
Brooklyn	Rakower, William	Lieut.
Brooklyn	Steinberg, Julian	Lieut.
Brooklyn	Zerden, Edward	Lieut.
Buffalo	Fick, Edward H.	Lieut.
Buffalo	Fuller, Robert A.	Lieut.
Buffalo	Gibbons, R. M., Jr.	Lieut.
Buffalo	Hornung, Francis C.	Lieut.
Buffalo	Johnson, Walter E.	Lieut.
Buffalo	Montgomery, R. L.	Lieut.
Buffalo	Snyder, N. S., Jr.	Lieut.
Central Islip	Corcoran, John W.	Lieut.
Cheektowaga	Szwejda, Louis F., Jr.	Lieut.
Dunkirk	Pogorzelski, Harry A.	Lieut.
Edwards	Adams, Edward P.	Lieut.
Farnham	DeMarco, Paul E.	Lieut.
Flushing	Ayers, Herbert D.	Lieut.
Forest Hills	Israel, Bernard B.	Lieut.
Forest Hills	Shotten, Irving	Lieut.
Fulton	Wadsworth, Robert H.	Lieut.
Greenwich	Williams, Clarence D.	Lieut.
Hamburg	Ploss, William R.	Lieut.
Jamaica	Treiber, John C.	Lieut.
Jamestown	White, Herbert A., Jr.	Lieut.
Kenmore	Gauchat, Leon R.	Lieut.
Kenmore	Glor, Chester P.	Lieut.
Kinderhook	Shank, Leon J., Jr.	Lieut.
Kingston	Fletcher, Morris J.	Lieut.
Laurelton	Sakrais, Leonard M.	Lieut.
Long Beach	Jasen, Barnet	Lt. Cmdr.
Long Island	Conolly, Joseph B., Jr.	Lieut.
Long Island	Del-Zio, John E.	Lieut.
Long Island	Havlin, B. F.	Lt. Cmdr.
Long Island	Hubert, E. D.	Lt. Cmdr.
Long Island	Keahon, Gerald R.	Lieut.
Long Island	Linn, David H.	Lieut.
Long Island	McAuley, J. A.	Lt. Cmdr.
Malone	Robarge, C. W.	Lt. Cmdr.
Medina	Shoemaker, J. C., Jr.	Lieut.
Newburgh	Bushart, W. F.	Lt. Cmdr.
New York	Aronson, Martin E.	Lieut.
New York	Cohen, Herbert	Lieut.
New York	Easton, Robert A.	Lieut.
New York	Famulari, John R., Jr.	Lieut.
New York	Fishman, Isidore H.	Lieut.
New York	Gorelick, Leonard	Lieut.
New York	Hersh, Meyer L.	Lieut.
New York	Horwitz, Leon J.	Lieut.
New York	Keneally, Francis J.	Lieut.
New York	Koplik, Michael R.	Lieut.
New York	Kornblueh, Frederick	Lieut.
New York	Levine, David	Lieut.
New York	Siegel, Fred M.	Lieut.
New York	Smith, Alexander B.	Lieut.
New York	Steinberg, Charles	Lieut.
New York	Tekulsky, Irwin N.	Lieut.
Niagara Falls	Kwapisz, John H.	Lieut.
Niagara Falls	Leone, Dominic S.	Lieut.
Niagara Falls	Wright, Arthur J.	Lieut.
Olean	Golden, John E.	Lieut.
Ozone Park	Sabatino, C. F.	Lt. Cmdr.
Poughkeepsie	Josias, Howard B.	Lieut.
Rochester	Sweet, A. Porter S.	Cmdr.
Stittville	Bowdish, E. W.	Lieut.
Syracuse	Rapson, Edward B.	Lieut.
Utica	Marans, Gordon J.	Lieut.
Utica	Pendolf, Philip P.	Lieut.
Wellsville	Gibson, Charles S.	Lt. Cmdr.
Wingdale	Guerin, Harold D.	Lieut.

North Carolina

Asheville	Hoffman, R. R.	Lt. Cmdr.
Casar	Pruett, Julius E.	Lieut.
Durham	Pedersen, Walton E.	Lieut.
Fairmont	Pirvis, P. C.	Lieut.
Hendersonville	Keith, Otho R., Jr.	Lieut.
High Point	Smith, Dowell W.	Lieut.
Raleigh	Ligon, Joseph H., Jr.	Lieut.
Roseboro	Williams, H. R.	Lt. Cmdr.
Smithfield	Kornegay, Joseph M.	Lieut.
Spencer	Weant, Theodore F.	Lieut.
Timberland	Jordan, Julius F.	Lieut.
Varina	Jones, Andrew J.	Lieut.
Whitakers	Strickland, Earle W.	Lieut.
Wilson	Gooding, Herbert W.	Lieut.
Wilson	Turner, Remus S.	Lieut.
Winston-Salem	Austin, Edward U.	Lieut.

North Dakota

Mandan	Lang, Douglas S.	Lieut.
Minto	Slominski, Paul J.	Lieut.
Willow City	Olson, Clarence P.	Lieut.

Ohio

Ada	Tipple, Robert E.	Lieut.
Alliance	Haramis, Dean E.	Lieut.

Bay Village	Sadler, Dean E.	Lieut.
Bryan	King, Benjamin F.	Lieut.
Campbell	Wansack, Andrew	Lieut.
Chillicothe	Rickey, William A.	Lieut.
Cincinnati	Ball, Edward L., Jr.	Lieut.
Cincinnati	Burns, Noble K.	Lieut.
Cincinnati	Kearns, Louis A.	Lieut.
Cleveland	Carje, Vincent J.	Lieut.
Cleveland	Ferencz, Nicholas J.	Lieut.
Cleveland	Laurila, Arvid L.	Lieut.
Cleveland	Olson, Donald R.	Lieut.
Cleveland	Robbins, Edward I.	Lieut.
Cleveland	Wilson, Clyde E.	Lt. Cmdr.
Cleveland Hts.	Miller, Donald D.	Lieut.
Columbus	Hamilton, Noel D.	Lieut.
Columbus	Thom, Charles P.	Lieut.
Cortland	Sigler, James T.	Lieut.
Euclid	Urankar, W. F.	Lt. Cmdr.
Freeport	Fairchild, Donald W.	Lieut.
Lima	Brunk, Robert D.	Lieut.
McDonald	Lantz, Harry J.	Lieut.
Mansfield	Acomb, James R.	Lt. Cmdr.
Miamisburg	Starkey, Paul E.	Lieut.
Newark	McFarland, E. M., II	Lt. Cmdr.
Portsmouth	Duvendeck, W. W.	Lieut.
Ravenna	Hammond, Jesse L.	Lieut.
Shaker Heights	Caplan, Henry L.	Lt. Cmdr.
Springfield	Chynoweth, J. L., Jr.	Lieut.
Springfield	Scholl, Clark H.	Lieut.
Toledo	Lindsey, Fred J.	Lieut.
University Hts.	Yabroff, Herbert	Lieut.

Oklahoma

Ada	Chapman, J. C.	Lt. Cmdr.
Altus	Abernethy, E. A., Jr.	Lieut.
Altus	Wooldridge, H. R.	Lieut.
Apache	Smith, Orville L.	Lieut.
Eufaula	Sellers, Wallace N.	Lieut.
Henryetta	Bryant, William E.	Lieut.
Muskogee	Teaff, Joe A.	Lieut.
Oklahoma City	Hopkins, William C.	Lieut.

Oregon

Enterprise	Miller, Bernard J.	Lieut.
Hood River	Gaulke, Sergius R.	Lieut.
Klamath Falls	Roenicke, A. O.	Lt. Cmdr.
Portland	Bodmer, Forrest F.	Lieut.
Portland	Bodner, George H.	Lieut.
Portland	Coy, Donald E.	Lieut.
Portland	Davis, Vincent K.	Lieut.
Portland	Hebard, Harold F.	Lieut.
Portland	Hilles, Richard P.	Lieut.
Portland	Howe, William W.	Lieut.
Portland	Landis, Robert L.	Lieut.
Portland	Lee, Sam G.	Lieut.
Portland	Monroe, W. A., Jr.	Lieut.
Portland	Neuru, Earl A.	Lieut.
Portland	Schullman, Paul M.	Lieut.
Portland	Utter, Delbert E.	Lieut.
Portland	Weber, Frank L.	Lieut.
Portland	Woods, Guy A., Jr.	Lieut.
Salem	Burton, Joseph T.	Lieut.

Pennsylvania

Allentown	Brader, Allen C.	Lieut.
Ambridge	Butchers, H. A.	Lt. Cmdr.
Brentwood	Hughes, C. M.	Lt. Cmdr.
Canonsburg	Sulkowski, Robert V.	Lieut.
Cynwyd	Jackson, John M.	Lieut.
Derry	Gilchrest, G. I., Jr.	Lieut.
Erie	Richardson, James H.	Lieut.
Erie	Williams, Robert E.	Lieut.
Glassport	Bullock, J. A.	Lt. Cmdr.
Glenside	Thomas, William W.	Lieut.
Honesdale	Smith, F. J.	Lt. Cmdr.
Johnstown	Wesner, Lawrence J.	Lieut.
Kulpmont	Lauer, Lewis A.	Lieut.
Lewistown	Russ, Carl T.	Lieut.
Marion	Grubb, D. G., Jr.	Lt. Cmdr.
Mercer	Proctor, William W.	Lieut.
Morrisville	Margerum, R. E., Jr.	Lieut.
Narberth	Berry, H. M., Jr.	Lieut.
Norristown	Flad, Daniel L.	Lieut.
Perkasie	Apple, Charles W.	Lt. Cmdr.
Philadelphia	Brewer, George B.	Lieut.
Philadelphia	DeFino, Rocco J.	Lieut.
Philadelphia	Dworkin, Barry B.	Lieut.
Philadelphia	Evans, Emerson A.	Lieut.
Philadelphia	Famiglini, F. M.	Lt. Cmdr.
Philadelphia	Felice, Tito J.	Lieut.
Philadelphia	Graves, Ernest A.	Lt. Cmdr.
Philadelphia	Green, Philip	Lieut.
Philadelphia	Ilko, John L.	Lieut.
Philadelphia	Loftus, Francis V.	Lt. Cmdr.
Philadelphia	Moscow, Martin	Lieut.
Philadelphia	Pearlman, Stanley	Lieut.
Philadelphia	Suter, Robert L.	Lieut.
Pittsburgh	Edelson, Seymour D.	Lieut.
Pittsburgh	Fetter, Russel M.	Lieut.
Pittsburgh	Finlay, William, Jr.	Lieut.
Pittsburgh	Lenchner, A. L.	Lt. Cmdr.
Pittsburgh	Meisel, Robert G.	Lieut.
Pittsburgh	Price, William P.	Lt. Cmdr.
Reading	Yoder, Robert M.	Lieut.
Renovo	DeJoe, Joseph L.	Lieut.
Roscoe	Smith, Robert L.	Lt. Cmdr.
Scranton	Butchko, Anthony	Lieut.
Shenandoah	Berson, Harold	Lieut.
Smithton	Powley, Joseph H.	Lieut.
Sugar Notch	Williams, John E.	Lieut.
Sunbury	Krepps, Gerald W.	Lieut.
Uniontown	Altman, C. F.	Lt. Cmdr.
Wayne	Hobson, John J.	Lieut.
Wilkes-Barre	Dombroski, S. W.	Lieut.
Williamsport	Smith, Stanley	Lt. Cmdr.
Williamsport	Stiber, Donald M.	Lieut.
York	Hunger, Arthur D.	Lieut.

Rhode Island

Bristol	Ramos, Anthony J.	Lieut
Middletown	Walsh, Edward M.	Lieut.
Newport	Belofsky, Jacob H.	Lieut.
Newport	Tisdall, Oliver F.	Lieut.
Providence	DiMuccio, E. A. J.	Lieut.
Providence	Keighley, J. F. M., Jr.	Lieut.
Providence	Noon, William J.	Lieut.
Providence	Tirocchi, Louis W.	Lieut.
Providence	Ziegler, Edward H.	Lieut.

South Carolina

Abbeville	Johnson, W. W., Jr.	Lieut.
Columbia	Brockington, F. S.	Lieut.
Columbia	Cheatham, M. W., Jr.	Lieut.
Easley	Whitmire, F. W., Jr.	Lt. Cmdr.

Enoree	Workman, C. M., Jr.	Lieut.
Gaffney	Dobson, Edward H.	Lieut.
Kingstree	McCabe, Thomas G.	Lieut.
Landrum	Mize, John T.	Lieut.
Loris	Kapps, Loy B.	Lieut.
Sumter	Durant, Eddie C.	Lieut.
York	Whitesides, Paul C.	Lieut.

South Dakota

Aberdeen	Wallace, Burdette F.	Lieut.
McLaughlin	Hatch, Robert E.	Lieut.
Rapid City	Dimock, John C.	Lieut.

Tennessee

Henderson	Parrish, Cecil O.	Lieut.
Knoxville	Beeler, William W.	Lieut.
Knoxville	Nanney, James E.	Lt. Cmdr.
Murfreesboro	Allen, Edmund B., Jr.	Lieut.
Murfreesboro	Ferrell, David L., Jr.	Lieut.
Nashville	Parker, Leo W.	Lieut.
Pulaski	Martin, Edward H.	Lieut.

Texas

Amarillo	Rogers, James S.	Lieut.
Austin	Smith, John B.	Lieut.
Corpus Christi	Best, Roemer O.	Lt. Cmdr.
Dallas	Faulds, Robert E., Jr.	Lieut.
Dallas	Fowler, E. R., Jr.	Lieut.
Dallas	Gillean, E. T., Jr.	Lt. Cmdr.
Dallas	Haymes, D. W.	Lt. Cmdr.
Dallas	Mansur, Algie M.	Lieut.
Dallas	Morris, Jack S.	Lieut.
Dallas	Perkins, William C.	Lieut.
Fort Worth	Reid, Culmer B.	Lieut.
Hamilton	Williams, Thomas R.	Lieut.
Houston	Jordan, Gerald E.	Lt. Cmdr.
Houston	Rosenbloom, J. L.	Lieut.
Houston	Stanford, W. O.	Lt. Cmdr.
Plainview	Hollingsworth, D. O.	Lieut.
Port Arthur	Boutte, Edmond G.	Lieut.
San Antonio	Hays, Dudley C.	Lieut.
San Antonio	Velinder, Roy A.	Lieut.
Scottsville	Verhalen, R. P., Jr.	Lieut.
Tulia	Graham, Will F.	Lieut.
Waco	Fischer, Jack C.	Lieut.
Wichita Falls	Powers, John M.	Lieut.

Utah

Ogden	Tippets, Ezra H.	Lieut.
Provo	Anderson, Dee V.	Lieut.
Salt Lake City	Cannon, Munn D.	Lieut.
Salt Lake City	Manley, Bernard M.	Lieut.
Salt Lake City	Sandberg, Elmer L.	Lieut.
Salt Lake City	Stutznegger, Orin H.	Lieut.
Salt Lake City	Thomas, Kenneth W.	Lieut.
Tremonton	White, Edgar H.	Lieut.
Washington	Neilson, McKay	Lieut.

Virginia

Alexandria	Burch, Henry N., Jr.	Lieut.
Appomattox	Swing, C. H., Jr.	Lieut.
Arlington	Belvins, Lucas H.	Lieut.
Arlington	O'Donnell, Vincent A.	Lieut.
Crozet	Shroyer, D. C.	Lt. Cmdr.
Dante	Turner, Robert W.	Lieut.
Kecoughtan	Pully, Nelson O.	Lt. Cmdr.
Lynchburg	Somers, Nathan	Lt. Cmdr.
Norfolk	Barrick, Richard B.	Lieut.
Norfolk	Kanter, Jack C.	Lt. Cmdr.
Norfolk	Williams, R. E., Jr.	Lt. Cmdr.
Orange	Harris, William B.	Lieut.
Radford	Roberts, T. W.	Lt. Cmdr.
Richmond	Gunter, John L.	Lieut.
Roanoke	Martin, James E.	Lieut.
Staunton	Harper, Claude A.	Lieut.
Stuart	Akers, James C.	Lieut.
Weems	Ball, Warner J.	Lieut.

Washington

Chehalis	Hoveland, Clifford N.	Lieut.
Everson	Thompson, Robert G.	Lieut.
Mercer Island	Bingham, William R.	Lieut.
Spokane	Grant, Theodore S.	Lieut.
Spokane	Stickle, Francis N.	Lieut.
Tacoma	Newschwander, C. E.	Lieut.
Wenatchee	Sheppard, John R.	Lieut.
Yakima	Williams, John H.	Lieut.

West Virginia

Beckley	Shumate, Norman W.	Lieut.
Beckley	Sutphin, Sheridan S.	Lieut.
Charleston	Abrams, Joseph	Lieut.
Grafton	Stover, Harry M.	Lieut.
Point Pleasant	Park, Nelson A.	Lieut.
Princeton	Belcher, Willard C.	Lieut.
Ridgeley	Martin, Joseph B.	Lieut.
Webster Springs	Post, Zaner W.	Lieut.

Wisconsin

Adams	Graykowski, E. A.	Lieut.
Fairchild	Voll, Jack E.	Lieut.
Greenwood	Giswold, Loren G.	Lieut.
Jefferson	Donovan, C. E.	Lt. Cmdr.
Juneau	Brensike, Paul A.	Lieut.
Kenosha	Andrea, M. C.	Lt. Cmdr.
Kiel	Baus, Valentine A.	Lieut.
Madison	Rundell, William F.	Lieut.
Milwaukee	Avellone, S. J.	Lieut.
Milwaukee	Berkey, Earl J.	Lt. Cmdr.
Milwaukee	Kaparich, John J.	Lieut.
Milwaukee	Pinsky, Leo D.	Lieut.
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Milwaukee	Welch, Emmet G.	Lieut.
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Rock Springs	Lane, James T.	Lt. Cmdr.

MEETINGS AND ANNOUNCEMENTS

Meetings of State Societies

State	*Date*	*Place*	*Secretary*	*Address*
Alabama	April 8-10, 1947	Birmingham	G. W. Matthews	1922 Tenth Ave., South, Birmingham 5
Arizona			R. D. McDonald	601 Valley Bk. Bldg., Mesa
Arkansas			I. M. Sternberg	Merchants Bk. Bldg., Ft. Smith
California			L. E. Linehan	450 Sutter, San Francisco
Southern California	Sept. 16-18	Los Angeles	R. L. Borland	Rm. 615, 1052 W. 6th St., Los Angeles
Colorado			M. R. Markley	Republic Bldg., Denver
Connecticut			E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware			H. R. Stucklen	1003 Delaware Ave., Wilmington
District of Columbia			M. E. Colvin	1726 21st St., N.W., Washington
Florida	Nov. 11-13	Palm Beach	A. J. Fillastre	603 Marble Arcade, Lakeland
Georgia			R. H. Murphy	605 Bankers Ins. Bldg., Macon
Hawaii	Oct. 29-Nov. 3	Honolulu	J. H. Dawe	P.O. Box 39, Honolulu
Idaho			H. Miller	Moscow
Illinois	Sept. 16-19	Chicago	L. H. Jacob	Jefferson Bldg., Peoria
Indiana			E. E. Ewbank	Kingman
Iowa			A. N. Humiston	417 Higley Bldg., Cedar Rapids
Kansas	May 12-15, 1947	Kansas City, Mo.	F. A. Richmond	1008 Huron Bldg., Kansas City
Kentucky			J. L. Walker	640 Barbee Way S., Louisville
Louisiana	April 10-12, 1947	New Orleans	J. S. Bernhard	407 Med. Arts Bldg., Shreveport
Maine			A. H. Garcelon	State House, Augusta
Maryland			P. A. Deems	835 Park Ave., Baltimore
Massachusetts			P. E. Adams	106 Marlborough St., Boston
Michigan			F. Wertheimer	Mich. Dept. of Health, Lansing
Minnesota			L. M. Cruttenden	498 Lowry Med. Arts Bldg., St. Paul
Mississippi			O. L. Colee	Magnolia
Missouri	May 12-15, 1947	Kansas City	C. W. Digges	Exchange Natl. Bk. Bldg., Columbia
Montana			F. E. Laing	401 Hart-Albin Bldg., Billings
Nebraska			F. A. Pierson	Fed. Securities Bldg., Lincoln
Nevada			L. G. Jacob	601 Med. Dent. Bldg., Reno
New Hampshire			F. E. Williams	814 Elm St., Manchester
New Jersey			J. G. Carr	223 E. Hanover St., Trenton
New Mexico			J. S. Eilar	1st Natl. Bk. Bldg., Albuquerque
New York			C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina			C. W. Sanders	Benson
North Dakota			F. A. Maides	Grand Forks
Ohio	Nov. 11-13	Columbus	E. C. Mills	220 S. Cassady Ave., Columbus
Oklahoma			E. Wise	Med. Arts Bldg., Tulsa
Oregon			W. H. Hurley	Selling Bldg., Portland
Panama Canal Zone			I. Buchin	Post Dent. Surgeon, APO 834, c/o PM, New Orleans
Pennsylvania			E. R. Aston	421 Market St., Kingston
Philippine Islands			G. A. Carreon	9 Broadway, 3rd St., N. Manila
Puerto Rico			J. O. Porrate	16 Caribe, Santurce
Rhode Island			C. F. McKivergan	102 Waterman St., Providence
South Carolina			P. B. Hair	701 Andrews Bldg., Spartanburg
South Dakota			E. W. Elmen	Sioux Falls
Tennessee	May 5-8, 1947	Nashville	E. J. Justis	Exchange Bldg., Memphis
Texas			W. Ogle	313 Med. Arts Bldg., Dallas
Utah			M. G. Kuhre	Trib.-Tel. Bldg., Salt Lake City
Vermont			J. A. Larrow	Middlebury
Virginia			J. E. John	804 Med. Arts Bldg., Roanoke

Washington	F. J. Dingler	1502 Med. & Dent. Bldg., Seattle
West Virginia	M. H. Nicholson	321 Cal & Coke Bldg., Bluefield
Wisconsin	R. A. Mason	964 N. 27th St., Milwaukee
Wyoming	J. D. McNiff	Laramie

Meetings of State Boards of Dental Examiners

Arizona	Oct. 2	Phoenix	R. K. Trueblood	25 N. Second Ave., Glendale
California	Aug. 5	San Francisco	K. I. Nesbitt	515 Van Ness Ave., San Francisco
	Sept. 16	Los Angeles		
Florida	Oct. 28-31	Jacksonville	A. W. Kellner	P.O. Box 155, Hollywood
Kentucky	Dec. 17-20	Louisville	W. F. Walz	1114 1st Natl. Bk. Bldg., Lexington
Oregon	Oct. 28-Nov. 2	Portland	F. L. Utter	506 Pioneer Trust Bldg., Salem
South Dakota	Sept. 1-5	Sioux Falls	T. E. Burrington	P.O. Box 5, Rapid City

Other Meetings

Name	*Date*	*Place*	*Secy. or Chm.*	*Address*
American Association of Dental Examiners	Oct. 12-13	McAllister Hotel, Miami	C. A. Bumstead Secy.	924 Stuart Bldg., Lincoln, Nebr.
American Association of Orthodontists	Sept. 30-Oct. 3	Hotel Broadmoor, Colorado Springs	Max E. Ernst Secy.	1250 Lowry Med. Arts Bldg., St. Paul
American Dental Assistants Association	Oct. 14-16	Roney Plaza & Surfside Hotels, Miami Beach	Aileen Ferguson Secy.	709 Centre St., Jamaica Plain 30, Mass.
American Dental Hygienists' Association	Oct. 14-16	Alcazar Hotel, Miami Beach	A. R. Fisk Secy.	1704 N. Troy St., Arlington, Va.
American Public Health Association	Nov. 11-16	Cleveland	Harold J. Knapp Chm.	Health Commissioner, Cleveland
American Society of Oral Surgeons	Oct. 9-12	Roney Plaza Hotel, Miami Beach	Harry Bear Secy.	1112 E. Clay St., Richmond 19, Va.
National Dental Association	Aug. 19-23	Louisville	J. A. Jackson Secy.-Treas.	Charlottesville, Va.
Montreal Dental Club	Oct. 23-25	Mount Royal Hotel, Montreal	M. L. Donigan Chm.	Drummond Med. Bldg., 1414 Drummond St., Montreal
Mid-Continent Dental Congress	Nov. 4-6	Jefferson Hotel, St. Louis	E. C. Brooks Chm.	4500 Olive St., St. Louis
University of Buffalo, School of Dentistry, Alumni Association	Oct. 8-10	Hotel Statler, Buffalo	E. L. Ruffing Publicity Chm.	233 W. Ferry St., Buffalo 13
New York Society of Orthodontists	Nov. 4-5	Waldorf-Astoria Hotel, New York	O. Jacobson Secy.	35 W. 81st St., New York
Wisconsin Dental Economic Study Club	Aug. 23-24	Madison	L. R. McCormick Publicity Chm.	2609 University Ave., Madison

Internships, Externships, Residencies and Fellowships

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The Children's Memorial Hospital, Chicago. Administrator, Mabel W. Binner, 707 Fullerton Ave., Chicago.

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